Volume II. *November, 1894.* *Whole*
Number 9. *Number 19.*

THE SCHOOL REVIEW

A JOURNAL OF SECONDARY EDUCATION

METEOROLOGY IN THE SCHOOLS

The opportunity for teaching meteorology effectively in the schools is favored by the liberal policy of the national Weather Bureau regarding the distribution of the daily weather maps. There are now over seventy cities in which the daily maps are prepared for prompt distribution to the surrounding districts, and the public schools receive a considerable share of the editions published. Besides the finer maps lithographed in the Central office in Washington, there were over 8,000 maps issued daily from the other publishing stations in 1893.

Yet in spite of this open opportunity, there does not seem to be much growth, as far as I can learn, of a sound knowledge of the principles of meteorology, based, on the one side, on systematic induction from local observation extended by the facts presented on the weather maps, and, on the other side, on legitimate deductions from accepted physical laws. One difficulty here is presumably the absence of a modern text-book; for Ferrel's *Popular Treatise on the Winds* is too advanced for most teachers as well as for scholars; it is an admirable reference book for college students but can hardly be used in the secondary schools. Waldo's *Modern Meteorology* is hardly intended as a text-book, but rather as a reference book for the expert, already informed in the science and desirous of following its recent advances. Abbe's translations of foreign mathematical memoirs on meteorological subjects published by the Smithsonian Institution is too profound for use by any but proficient mathematicians. An *Elementary Meteorology* of my own, just published, will I hope enter into the curriculum of the high schools where meteorology finds a place, but it is not intended to reach the grammar schools, in which the first acquaintance with the weather maps and with the simpler facts and principles of the science should be made. The book

may help the grammar school teacher; but it is not intended for the grammar school pupil. There is indeed no book prepared for use in schools of this grade, from which the scholar can gain an adequate introduction to the subject; and I therefore submit herewith a brief outline of what seems to me the more important beginnings in the work. It may be said that an article of somewhat similar tenor and under the same title as this, was printed in the *American Meteorological Journal* for May, 1892.

I shall assume that the teacher in the primary school has called the attention of her children to various simple matters of observation; warmer and colder weather and seasons; changes from wet to dry, from cloudy to clear, from windy to calm; not as part of a special subject, under the name of meteorology, but simply as part of the elementary study of the facts about the school. Mr. Jackman has shown in his *Number Work in Nature Study* how far facts of this kind can be used as a basis of various exercises in arithmetic. Not later than the eighth year, some practice in systematic weather records of a simple kind should be afforded, preferably in connection with the study of geography, under whose broad shelter so many separate subjects of later years are first met.

On some such basis as this, the earlier and middle years of the geographical course in the grammar school may be greatly enriched by the introduction of weather maps as a basis for inductive study. If the school is situated in a city where the maps are published, there should be little difficulty in getting a sufficient supply of maps. If they cannot be had direct from the local office of the Weather Bureau, they can certainly be had at second hand from some of the hotels or large stores, where they are often temporarily exposed for public reference; and even if a day or two old, they are still serviceable for most school uses. Country schools may sometimes have difficulty in securing a sufficient supply of the maps. The principal of the school should then write to the nearest map-publishing station of the Weather Bureau, or to the Chief of the Weather Bureau in Washington, as to the best means of securing what he needs. If the maps cannot be supplied direct to the school, it is likely that the observer in charge of the nearest map-publishing station can inform the teacher of some one from whom second hand maps can be had for not more than the cost of the postage, a cent or two a day.

The maps should be carefully preserved; for after a little study, the scholars should consult the collection with the object of discovering recurrent examples of a given type; but of this more below. Brown paper folders, large enough to hold the maps unfolded, in groups of a month, will serve all practical needs.

In using the weather maps, the most important thing at first is to go slowly. In several published accounts of methods of using the maps in grammar schools, too rapid a rate of progress is attempted; and no sure foundation is laid for future work. The maps should be held before the scholars' attention during at least two years of grammar school study; never calling for much work upon them, and yet never allowing the preceding lesson to become stale before a new one is added. Much of the necessary work may be apportioned to one scholar after another; a general announcement of results being made before the class. Comparison of observed local weather conditions with appropriate maps should not be introduced too soon; the real meaning of the weather maps must be learned before they are of much value in explaining local weather features.

Temperature is probably the best weather element on which to begin. As the figures on the maps are often too faint for easy sight, the teacher should prepare a few maps before hand by repeating the thermometer readings in strong black figures. Several contrasted maps should be at hand. One for New Year's day, one for the Fourth of July, or some such dates, suggestive of different seasons. After the preliminary explanation and examination of the data for temperature, a description of the distribution of temperature should be called for; thus exercising geography and language as well as illustrating the variation of temperature with time and place. Select some temperature which occurs on both the winter and summer maps; for example, 50° F. Ask the class to determine over what part of each map a higher temperature is recorded. Let one of the more dextrous scholars draw a line between the areas that are warmer and colder than 50°. Let another scholar examine the line thus drawn to see if he would alter it. It should lie half way between two stations reporting 48° and 52°; but one third way from a station reporting 48° toward another reporting 54°. Only after free use of these lines has been gained should they be named, isotherms. Prac-

tice in drawing isotherms on days of diverse distribution of temperature should be afforded, and the results should be concisely described in words.

Next, select some map with comparatively regular isotherms, and ask in what direction a traveller should go from Nashville or some other central station, in order to enter most rapidly into colder weather; or into warmer weather. It should be perceived that his path ought to lie square to or at right angles to the isotherms. Draw such a path for a short distance. Do the same from several other stations. Finally, prolong these lines all across the map. They will run from the warmer to the colder regions; not necessarily north and south. They may be provisionally called lines of decrease of temperature. Maps should be prepared with faint isotherms and strong lines of decrease of temperature, in order to emphasize the idea of the change of temperature, in contrast to the idea of constancy of temperature indicated by the isotherms. The lines of decrease will generally trend northward; but sometimes to the west, sometimes to the east of the meridians.

The next step in this division of the subject may be delayed till other matters of a simpler nature are passed, but it will be mentioned here for convenience. Select some line of decrease of temperature, and ask where the decrease is most rapid. This must be introduced with caution, for the idea involved is not particularly elementary; but if well presented, it will serve admirably to teach the principle of rates; on which I find many a college student very poorly grounded. It will soon be discovered that the decrease of temperature is most rapid where the isotherms are closest together. A given decrease of temperature will there be passed over in the least distance; or conversely, a greater decrease will be experienced in a given distance. With this idea in mind, compare maps for summer and winter; notice the relatively equable distribution of temperature in summer, and the associated slow change of temperature along the lines of decrease; and compare this with the violent contrasts often found on winter maps between the mild air of Florida and the extreme cold of the far northwest. Climatic facts of greater importance are thus discovered. They may well serve as texts for exercises in English; for it is no small matter to express the whole of these results in con-

cise and well-chosen language. Being a result obtained by the work of the scholars, a result that has grown up under their own eyes, it is a much better subject for exercises in composition than "the art of printing", "the beauty of virtue", and others of that kind which clouded my composition-days.

The wind may be studied before the last subject. The wind arrows should be strengthened into visibility; care being taken to introduce examples at first in which aberrant wind courses are few or wanting. Maps with an area of high pressure in the northwest and a low pressure centre off the eastern coast, or *vice versa*, are to be preferred; for in such cases, the wind moves in broad sweeping paths. In order to bring out the movement of the air all across the country, wind-lines should be dotted in between the stations of observation, but in sympathy with the observed wind directions. The flow of broad atmospheric currents is thus rendered visible. Heavier lines may be used for faster winds; and with this graphic aid, it will be soon perceived that there is a prevailing increase of velocity in passing from those large areas out of which the winds seem to flow, towards these smaller areas into which they curve obliquely. This is an important generalization, to be recalled later. As in the exercises on temperature, these results should be clearly formulated by the scholars. A gradual advance will be thus made towards discovering the right-handed outward spirals and the left-handed inward spirals which the winds prevailingly follow.

The distribution of pressure is more difficult of clear explanation than any other subject connected with the weather maps, yet it must be introduced rather early, on account of its great importance. Unfortunately, the variations of atmospheric pressure are not perceptible without instrumental aid; and still more unfortunately, so expensive an instrument as a good barometer cannot be provided for all grammar schools. It is sometimes possible to borrow one from a generous neighbor for a week or two, and then a few days' observation will show the *fact* of change of pressure, after which further advance is easier. Another difficulty comes in the matter of reduction of barometric readings to sea level; a subject that cannot be explained here, nor in the grammar school. It must suffice to say simply that certain corrections are applied to the observations at different stations in

order to make them comparable; and even this may be omitted until it is called for by some questioner. The drawing of isobars may be quickly explained, because it is merely a repetition of the method used with the isotherms; but a striking difference is noticed in the forms of the two classes of lines. The isobars frequently encircle areas within which the pressure is higher or lower than anywhere else on the map. These are generally indicated by the words high and low. HIGH and LOW. Lines of decrease of pressure should be drawn on several maps; especially on maps exhibiting these high and low pressure areas distinctly; and the places of rapid and slow decrease of pressure should be discovered. As before, careful attention should be given to the expression of the observed facts, as far as possible in language chosen by the scholars. Few technical terms should be introduced at this early stage of the study. After accounts of individual maps, generalizations may be attempted: what has been noticed as occurring on several maps may be described under a single heading. Clouds, rain and snow, and humidity may receive some attention at this stage, but they may also be postponed to later exercises.

Thus far, no attempt has been made to connect the several weather elements. The next step introduces the important correlation between pressures and winds.

Compare the direction of the wind with the direction of the lines of decreasing pressure. There is a certain agreement, but it is not precise. In most cases, the winds turn to one side of the direction of decreasing pressure. Let this be very carefully stated; and in the simple generalization, accessible to nearly every boy and girl in a grammar school, "the wind generally turns a little to the right of the line of decrease of pressure," we have a re-discovery of what is commonly called Buys-Ballot's law. It is, indeed, not a little interesting to notice how many great discoveries may be easily repeated by children in the grammar schools; discoveries which cost eminent meteorologists a great deal of labor only half a century ago; but which are now laid plainly before any persevering young student of the weather maps.

In case the brighter scholars ask why the wind does not go straight along the line of decreasing pressure, let the teacher be careful as to the answer. No proper explanation of this fact can

be given at this stage. It is a result of the rotation of the earth; but the current explanations of the process by which the deflection of the wind is produced are unsatisfactory, to say the least. The correct principle, as embodied in Ferrel's law, states that there is force arising from the earth's rotation, which tends to deflect all bodies to the right in the northern hemisphere, but to the left in the southern hemisphere. It should be noticed that this applies as much to motions eastward or westward, as to motions north or south; and therein this correct statement differs from the popular explanation; but this is only by the way. The demonstration of the law is given in Ferrel's treatise, referred to above.

By selecting distinct examples, it may be easily seen that the wind is stronger where the decrease of pressure is rapid; that it is weaker or calm where the distribution of pressure is equable. This relation of wind velocity to rate of decrease of pressure ranks among the more difficult exercises; but it may be safely accomplished if the teacher is careful to advance very slowly; to insist on close observation and simple description of the facts noted; to use no technical terms before the facts that they name are clearly apprehended; and to repeat similar exercises until the principles that they illustrate are fully comprehended by the class.

Another correlation of far reaching importance is discovered in connecting the spirals of wind motion with the areas of high and low pressure. This is too often told to a class among the first lessons; but I am persuaded that it is a mistake to introduce so large a result before the many antecedent facts are well learned; and it is also a mistake to infringe on the right of school children to make their own discoveries of simple laws, by announcing the laws before there has been any opportunity for sufficient study of them. A rather neat method of emphasizing this correlation is found in the preparation of composite diagrams of the winds in high and in low pressure areas. This may be done by the scholars as follows:—Draw a line through the middle of a sheet of tracing paper, about half the size of a weather map. Mark the ends of the line, N and S; place a dot at the middle of the line. Lay the dot over the centre of a low pressure area, and orient the tracing sheet: that is, turn the N-S line parallel to the local merid

ian. Then trace off all the wind arrows that are reported at stations whose lines of pressure decrease approach the low pressure centre. Do the same on several other maps, on which well-marked low pressure centres are included. Accumulate in this way a good number of wind arrows. They will all fall into their proper position with respect to the centre of low pressure; and they will be seen to exhibit a graphic average of the inflowing left-handed spiral, characteristic of these areas. The same process may be repeated for high pressure areas on another tracing sheet. If velocities are noted as well as directions, the length of the arrow may be drawn proportionate to the strength of the wind. The prevailingly high velocities around low pressure areas, and the low velocities and calms in high pressure areas will stand out very clearly.

Clouds and rain or snow may be examined next; and a striking relation will be found between their distribution and the occurrence of high and low pressure areas. As the different kinds of clouds are not specified on the weather maps, the distribution of clouds is not so instructive as that of rainfall.

Thus far, nothing has been said as to the progression of the weather areas across the country. If this has been discovered by the class, let it be naturally talked about; but do not for that reason omit its precise examination in due course. The place of the centre of a low pressure area on successive maps may be charted on a blank outline map; a line joining these points may be called the track of the low pressure centre. A number of such tracks should be collected on a single map. The same may be done for the high pressure areas. The frequent passage of low pressure areas across the Great Lakes and down the St. Lawrence valley will soon be discovered. If the collection of maps is sufficiently extended, the greater activity of the winds around the low pressure centres, and the greater velocity of the progression of the centres along their tracks in winter than in summer should be made out. Interesting correlations may here be made with the facts already discovered about the winter season in which the decrease of temperature is most rapid.

Finally, the correlation of passing areas of high and low pressure with weather changes may be attempted; and here the climax of the work is reached. Like the progression of weather

areas, this may be discovered earlier by the brighter scholars; but it deserves careful working out and repeated illustration. Then and not till then, is local weather fully appreciated. Then and not before, may attempts be safely made at weather prediction by the class.

Much more might be said regarding the later phases of this work, but space will not allow of it: yet there are certain matters remaining to which I wish to devote a few paragraphs.

The first concerns the technical terms and the physical explanations that the teacher may usefully introduce from time to time. When the lines of pressure decrease are familiar, they may be called temperature gradients or thermal gradients. They may be qualified as strong or weak; and numerical values may be assigned to these adjectives. In a similar way, the term pressure gradient, barometric gradient, or baric gradient may be used, qualified, and measured. The term, deflection, may be used to denote the departure of the wind from the baric gradient. The average value of the deflection angle should be determined. When the several characteristic features of the areas of low pressure and of high pressure are well recognized, they may be called cyclonic and anticyclonic areas; or more briefly, cyclones and anticyclones:—although I fear there may be objection to the use of these words in some parts of the country, on account of the prevailing misapplication of the term cyclone to designate the destructive local storms, or tornadoes, from which our country suffers. Among meteorologists, there is no such confusion; the Weather Bureau sanctions the use of the terms as here suggested; and a similar use is general in Europe. But in all cases, care should be taken not to introduce any terms until the ideas which they are to name have become perfectly familiar to the class.

Regarding explanations:—I have already suggested a caution as to the cause of the deflection of the wind from the gradient. In my own opinion, that subject should rest quietly until a later course in the high school, when it can be seriously taken up and correctly explained. Again as to the cause of cyclones and anticyclones; meteorologists are at present not altogether agreed, but the weight of opinion seems to regard them as large but subordinate eddies in the still larger whirl of the atmosphere around the poles, rather than as convectional phenomena.

The latter explanation may apply to the occasional cyclones of the torrid zone, but it does not seem to be generally applicable to the continual procession of cyclones in the temperate zones. But in grammar school work, it is not advisable to discuss the cause of these complicated phenomena. It is safer merely to lead the class to discover certain processes that are not directly indicated on the weather maps, instead of bringing up matters of theory. For example, the inflowing spiral winds of the cyclonic areas imply an ascent of the air currents around the centre; and this is confirmed by the prevailingly cloudy and wet condition of the atmosphere in these areas. Conversely, the outflowing spiral winds of the anti-cyclonic areas imply a slow descent of the air from aloft; and this is in turn confirmed by the prevailingly clear sky of these areas. Here, however, a caution should be introduced if any mention is made of the cause of the clouds and rainfall in the cyclonic areas. They are not cloudy and wet because the moisture of the lower air is condensed by "the cold of the upper regions." In spite of its general currency, this explanation has little or no value. The ascending air becomes cloudy in great part because of the cooling that it suffers on account of its own expansion as it rises to levels where the pressure upon it is reduced. Conversely, anticyclonic air is clear, because it is warmed by compression during its descent. At the base of anticyclones in winter, the air is very cold; but this is not because the cold of the upper regions has been brought down. That is impossible. The air under winter anticyclones is cold because the earth cools rapidly by radiation through the clear and clean air above it; the snow-covered ground thus becomes very cold, and the lower air is cooled by radiation and conduction to it. These matters are briefly referred to here, because some mention of them often has to be made in teaching, and because they are so often misunderstood.

Regarding the further use of the facts discovered on the weather maps. Nearly every item may be applied to other parts of the world than our own country. The heats of summer illustrate the torrid zone; the colds of winter bring the frigid zone to us. The whirling winds of our cyclones are repeated in similar storms of the southern hemisphere; but there they whirl the other way. The frequent variation of our winds under control of pass-

ing cyclones and anticyclones may be contrasted with the steady flowing trade winds (called trade winds, by the way, because of their steadiness, not "because they are useful to commerce"). The eastward passage of the stormy cyclones with their clouds and rainfall, and of the quiet anticyclones with their clear sky, is one of the most characteristic features of the temperate zone. These atmospheric disturbances form a procession around either pole outside of the tropics; but they seldom enter the torrid zone. The milder temperatures of our western coast and the extreme heats and colds of the continental interior teach one of the greatest climatic lessons that the world has to tell. The broader continent of Europe-Asia repeats the same lesson with increased emphasis.

Finally, as to the discipline afforded by study of this kind. It develops neatness of handiwork, sharpness of observation, careful generalization, concise formulation. It leads to independent work by every scholar, having in this the character of laboratory work. It affords opportunity for finding out things, for discoveries; than which nothing else so greatly encourages a boy or girl in school duties. It brings explanations to familiar facts, before unreasoned. I do not urge these features as superior to similar features in other studies, but as strong recommendations for giving practical elementary meteorology a fair share of time among grammar school studies.

W. M. Davis

Harvard University

ENGLISH IN SECONDARY SCHOOLS: SOME CONSIDERATIONS AS TO ITS AIMS AND ITS NEEDS

(*Concluded from October number.*)

First of all, the English teacher must be a teacher of English literature. Here he finds a legitimate specialty, competency for which demands long study, endless reading, and especially a reverential attitude of mind towards ancient thought and ancient forms of expression. These requirements of studious preparation and of absolute mental fealty he has in common with the teacher of history, but he wears them with a difference. The teacher of history labors to explain when and why and with what consequences things occurred, how civil institutions grew up and decayed, how our civilization came into being. The teacher of literature has for his theme the record which the race has kept, in beautiful and impressive forms, of the vicissitudes of its spiritual life. We must not consider our literature merely as the work of isolated men expressing private thoughts and feelings. Only those utterances which the race adopts are literature. When the race adopts a writer, it does this because it finds in him an adequate representative and exponent of itself. Literature therefore is the voice of the nation asserting its ideals, confessing its fears. We honor the individual writer because he has spoken our own thoughts in such wise as to make us know ourselves better and respect ourselves more. There is no influence discoverable in the school curriculum so directly and exactly fitted to uplift young souls as contact with old literature. The writers of the past made the books which we read to-day. Is it possible to imagine what life would be to us were our old English books blotted from existence?

The aim of literature teaching should be chiefly to inculcate reverence for the great writers, and a taste that should voluntarily choose them for hours of recreation in preference to the ephemeral writing of the day. To-day's interests are sure of abundant attention. The present speaks for itself all too loudly. The newspaper, the magazine, the newest book clamor all about us and insist on being heard. The literature of the present day can therefore be neglected in the secondary course.

The natural method is to begin with the writers nearest in time to our own day, because these are the most easily understood. Hence I would have the youngest pupils read Longfellow, Whittier, Emerson, Hawthorne, Lowell, Holmes, Bryant, Irving. That these writers are American is an additional reason for putting them at the beginning. But we must at once abandon the idea of continuing to make a distinction between English and American literature. It is a distinction impossible to make before the beginning of this century. Only when English or American writers have occasion to say distinctly English or American things do they betray which country they are of. There is but one great public of English readers. Neither country keeps its literature to itself: each speaks to the other, as well as to itself, in every literary utterance.

Pupils coming to the high school at the age of fourteen or fifteen years will ordinarily have made the acquaintance of these writers in the grammar schools. Thus the first high school year can be largely devoted to the English writers of the same period, —that is, to Tennyson, Browning, Wordsworth, Ruskin, Carlyle, Dickens, Thackeray, George Eliot, Scott, Macaulay.

The second year may be given to the eighteenth century, and concern itself especially with Dryden, Pope, Gray, Goldsmith, Cowper, Burns, Addison, Swift, Johnson.

To the last two years should be assigned the literature of the Tudor period and the work of Chaucer, with a cursory view of the literary monuments of the intervening fifteenth century. And of this two years of the English course I would give at least one good half to the single topic of Shakespeare. The remaining half I would divide between Milton and Chaucer, trying to make opportunity for a little of Bacon and Spenser, a good deal of Bunyan, and for something, if possible, of Clarendon, Marvell, and Butler. With the writers of the fourteenth century, other than Chaucer, it will be hardly feasible in high schools to do more than examine specimens for purposes of language study. The same study may be profitably pursued through the fifteenth century, which, except the Morte Darthur, produced no literary masterpieces, interesting to general readers, but which presents most curious memorials of the development of linguistic usage.

Now to any one who conceives me to mean that all the authors I have mentioned are to be brought into the class and read there, all the pupils holding the books and making identical preparation, I shall seem to have named far too many; while any one who imagines me as contemplating a manual of literary history, where each writer has his paragraph or two, or at most his few pages, will criticize my list as too meagre.

A manual of dates and facts, with references to sources of information, but wholly abstaining from criticism and exposition, is an excellent thing for pupils to have in possession throughout the course in literature. Histories of the literature, like Ten Brink's, Taine's, Morley's, Shaw's, Collier's, should be in the reference library, not in pupils' desks as text-books. A young student broods and muses over his book, and imbibes it without reference to the lessons assigned. As material for this rumination he should have the best and worthiest literary productions. No one has made, or will make, a text-book of literature good enough to be read in lieu of literature, or, I will say, good enough always to pitch the key of interest and expectation in which great writers should be approached. I make little account of any study of authors through intermediary books or lectures. We must contrive to deal with a considerable number of writers and to come into contact with the writings themselves.

Necessity has in this case been the mother of invention, and we have learned to break away somewhat from the custom of dealing with English texts in the slow, plodding manner we at first caught from the methods of the Latin and Greek classes. It remains, however, a good plan to read a few choice things in the thorough, intensive, stataric way. Best adapted for this purpose I have found, any one or two of Macaulay's literary essays, a poem of Scott, the minor poems of Milton with passages from the greater ones, and, say, four plays of Shakespeare. Macaulay's wonderful memory and his tact for summoning the items of his knowledge to do duty by way of illustration make the study of his prose an excellent lesson in general literature. Scott stirs young imaginations with his vigor of expression and keeps the reader's mood up to his own level by means of his grand poetic diction. In his reading of Scott the young student may first be led to consider the significance of poetic motives and forms. These studies

of poetics will connect themselves, but far more profoundly, with Milton; and here the learner will test all he knows of history and of the Scriptures, or can fathom of spiritual and religious truth, while he searches for the meaning of Comus and Lycidas, or traces the career of Satan through Paradise Lost and Paradise Regained. In Shakespeare the literature course culminates; for in Shakespeare is every element of intellectual and artistic greatness. No discipline so abounds in spiritual satisfaction as the study of our great dramatist. No habit can be brought from school more precious than the habit of reading and rereading those immortal poems.

The other way of conducting the school reading is the cursory, the rapid, the extensive or comprehensive way. Pedagogic art should strive to make the most it can of this resource. For instance, give a pupil a school week for reading a certain novel, or play, or poem, or a vacation week for reading two or three times as much; and then let him make a five minutes report, orally, or from manuscript, if he prefers, to the class, under injunction to have his report interesting and terse, and his English good. In thus prescribing reading it is necessary, above all things, to avoid giving out pieces which, however classical, will to the pupil be heavy and hard, and which, by embittering his leisure hours, may shake his loyalty of devotion to the study of literature. The mature student will delve and plod through anything, with an eye perhaps to honor or profit: but the youth must be humored. There is good reading for every age.

The best way is to encourage pupils to read from the promptings of their own tastes, or under such spurrings as their private experience supplies,—always, however, to be ready, when called on, to announce, or, perhaps, to confess, what they have been doing. This gives occasion for censuring bad choices; and such occasions are indispensable to furnish reaction points and grounds for reproof. Or let pupils in turn open the recitation by reading choice bits of prose or verse, and then either let the reader tell, or require the class to tell, what writer each passage is from. Such exercises furnish opportunity for correcting the crudities of juvenile taste. This correction is best administered by the mere act of dwelling solely on the good selections. Condemnatory language may awaken ill will. Your preferences had better be seen and surmised than heard uttered in censorious terms.

By mingling judiciously the cursory and the stataric methods it is possible to get over large areas of literature. Plays of Shakespeare reserved for stataric treatment should be chosen from the following:—Hamlet, Macbeth, Julius Caesar, The Merchant, The Tempest, As You Like It, The Midsummer Night's Dream, Henry VIII. For the oldest pupils this list may be extended to include Lear and Othello, and any other of the greater plays. Whatever plays are not read in the slow way may be studied in the cursory method, exception being made, of course, of such plays as, by the nature of their plots, dwell throughout on themes repugnant to modern tastes. However rapidly we go through a play, some passages must be read aloud in the class, with all care for the elocution, for the dramatic expression, for the due observance of the verse. Some passages must be committed to memory. Some scenes must be distributed to pupils for acting. But much must be left unpronounced, and had better be. The course of the plot can easily be told. The Henry Irving Shakespeare suggests what large excisions can be made without mutilating the story.

In Milton, after the minor poems and two books of Paradise Lost have been read statarically, the rest of the poetical works can be read cursorily, at the rate of a book per lesson. It is easy to make sure that the work is done and that the main difficulties are cleared away. Every passage specially noteworthy for any literary quality can be taken in hand for special consideration. I would certainly leave no part of Milton's verse unread, and on certain parts I would linger long.

We can get a good many Spectators read if we do not insist on having them all read aloud. The Rape of the Lock is worth one lesson: the Essay on Criticism is worth several if we can get the time. Wordsworth's Sonnet, "Scorn Not the Sonnet" is enough for a lesson. The rest of Wordsworth must be taken generously and left for the absorptive powers of nature to dispose of. It cannot profitably be much talked about. In literature as in religion there are the duties and the rites of the closet. To understand Wordsworth requires a certain habit of self communion which youth cannot possibly have acquired. The Deserted Village and the Traveller must be read at once; the Task, a book at least at a time; and Rasselas cannot be dwelt on. The Idylls of the King must be treated by mixed stataric and cursory methods.

Such a morsel of perfection as the Lady of Shalott it were wicked to treat as if it were commonplace. To lecture on the meaning of such a poem is futile. A piece of verse whose distinction is its supreme beauty is not to be racked for its meaning, but rather to be enjoyed as a work of art: it is not to be mastered, like a lesson, but to be surrendered to as a commanding influence. In such case the teacher's concern is to further and encourage the unskeptical attitude of admiration. Hence a beautiful poem had better be well read than commented on. The best way in which to treat the gems of literature is to recur to them often at intervals. The object should be to read or recite them, or perhaps to chant them, in the right tone, to show that they are truly felt and sympathized with. This may be said of The Eve of St. Agnes, of The Cotter's Saturday Night, of certain religious hymns, and of not a few pieces and passages that everybody loves and never grows weary of.

In taking up writers for study there is no need of observing a strict chronological order. Yet historical relations and the notable facts of literary evolution must be ever kept in mind. All that pupils know, or can be induced to learn, of political history should be constantly utilized to illustrate literary explanations. The teacher of literature will of course be qualified to group writers correctly, to associate them with rulers, statesmen, social conditions. To guard against anachronisms in the teaching, a good prophylactic is a rather generous diet of dates. I do not appreciate the hardship of memorizing a hundred dates. These I would have learned as the occasions for them arise, but constantly reviewed. If the teaching is such as to make a knowledge of time relations pay, pupils will not fail to get this knowledge. The biography of writers also has its importance, but may be easily overdone. The lives of Milton, Bunyan, Dryden, Pope, Addison, Swift, Gray, Johnson, Goldsmith, Cowper, Wordsworth, Burns, Byron must be justly pictured in the mind if we are to estimate rightly the men's writings. The writer reflects his personality and his environment. This study of literary biography should be as informal as possible;—that is, it should not be severed from the reading of literature, but should be interwoven with other acquisitions of as many kinds as may be, so that it shall help now and then to make fresh gains and come into inner relation with numerous mental activities.

The English recitation allows more diversity of procedure than any other in the secondary programme. Infinite topics, all good, can be found, or rather will thrust themselves on our notice; no two years need be alike; no two pupils, even in the largest class, need have the same things to do. The tendency to make rigid courses of study is, beyond the merest schematic outlines, purely pernicious. Incompetent supervisors always begin by inaugurating uniformity. (The menace of examinations, if it stimulates effort, does this by restricting movement, smothering curiosity, and impoverishing acquisition.) My own plan is to offer a great stock of topics for research, and to ask pupils to suggest still others. It is most desirable to have pupils volunteer enterprises of research and take the initiative even so far as to say what field they would like to explore. The only condition I impose is that the topic really require some examination of books. I am easily pleased. But there must be no borrowing from critical and expository books, from the articles of magazines and encyclopaedias. If a pupil insists on declining this work of research, why, he declines. Not all young people catch your enthusiasm, though the most do. Some minds in school classes, as well as some in supervisory boards, move in a perfunctory way, and demand always a clearly defined and assigned thing to do. Such minds must be respected and accommodated.

As a specimen or two of themes thus taken in hand by individuals I may give the following:—Compare Matthew Arnold's Tristram and Iseult with Tennyson's idyll, The Last Tournament; compare the "Pucelle" of I Henry VI with Schiller's Jungfrau or with DeQuincey's prose poem, Joan of Arc; illustrate Henry VIII from Miss Strickland's Queens; investigate the history of the "collars of S S" which certain nobles wear in Henry VIII; ascertain the meaning of the curious line in the Romaunt of the Rose, "with a threde basting my slevis"; explain the metric form of Arnold's Rugby Chapel, and show how to read its verse; comment on the verse form of L'Allegro and Il Penseroso; compare the blank verse of Shakespeare, Tennyson, and Milton. But there is no end to such topics. A vacation's reading should suggest several hundred.

When President Stanley Hall urges research as the true university function, he has in view research that shall add to the world's

stock of scientific knowledge. But we in the secondary school want research, even though it be but a sort of simulacrum of the grand research of the universities, because it stimulates and interests adolescent minds. I wonder youth do not rebel more than they do against the perpetual conning and reciting of lessons. Youth do not make their excursions into the fields in platoons, keeping step and making every movement under orders. The uniform class system, requiring of all minds simultaneous and identical preparation, requiring each pupil to listen to the deliverances of his fellows on subjects whose interest he has exhausted already, exacting attention to things that have no inherent power to command it,—the class system has all its justification in external necessity or convenience, and none in the nature of the adolescent man. Yet to make an audience for the teacher as lecturer the class group is good. It is good also as an audience for its own members, provided its members have matter original with themselves to present. For the conduct of the stataric English reading the class group is indispensable. The ideal situation in the class room is your thirty or forty pupils uneasy with curiosity, bursting with eagerness to tell what they know, anxious to be called up, each having his own subject, unlike that of any other, each believing himself fully primed to interest and inform the rest. This kind of work can hardly be marked or examined. Precisely in its unfitness for being scaled and tested, in its remoteness from complications of ranking and promoting, lies its excellence.

A methodic of literature teaching would be of itself a subject for a whole lecture. On this occasion it is only possible to name a few of the most essential points that such a methodic should include.

Besides studying poems, we should study poetry, or, more exactly, poetics. Pupils note with interest the differences between poetic and non-poetic themes and motives. This study will include also the forms of verse, with a view to train the ear to its harmony, and to show that the poets, as well as the musical composers, write carefully in measures, so that a reader, no less than a singer, must keep time. No one knows what the word *doggrel* means until he has duly habituated his ear to regular numbers. Hence we must have much oral reading of verse, especially of the iambic

decasyllable verse, which Surrey introduced into our literature, and Shakespeare and Milton made our supreme verse form. The rise and fall of the eighteenth century fashion of rhyming this verse in couplets are most interesting to trace. Next in importance is the iambic octosyllable line, with its curious facility of losing its head-syllable (auftakt) without prejudice to the rhythm. This subject of verse forms has been strangely neglected in the schools. It is surely quite as important as music, which is universally pursued.

To sum up the main points of my contention :—

I. No study in the secondary course will find its rational foundations until we initiate scientific research into all the elements, in the nature of youth and the nature of the material, with which this study comes into relation. The tendency now is to seek and consult authority rather than to search for philosophical grounds. The rational grounds of pedagogy are not to be delivered to it as a gift from the meditation of the thinker or the vision of the seer, but are to be achieved laboriously, by experimenting and observing.

II. The special teacher of English cannot possibly bear, and should decline, sole responsibility for the formative influence of the school upon habits of expression. His responsibility in this matter is precisely that of the other teachers, neither more nor less.

III. The English teacher should have special knowledge of the history of the language. He is not called on, however, to be an expert or authority in usage, or to be especially fine in his own use of English. The reasons why he should use good English are that good English is a mark of culture, and is not a special knowledge, and that his speech, like that of all the teachers, will serve as a model for imitation to youth. I will even go so far as to say that for the English teacher to be dainty and nice of speech will injure his influence as a teacher.

IV. The English teacher's main function should be the teaching of the literature; and for the exercise of this function he especially should be qualified by much reading and observation. What considerations of method in literature teaching at present chiefly demand seems to be larger utilization of the rapid or cursory way of reading.

V. Preëminently in English teaching the right of the individual may and should be respected. All teaching in all grades and in all departments is straining towards this goal; but English can take a long step in the right direction at once. It needs not to wait for any experimenter to complete his experiment, or for any committee to publish its report.

Samuel Thurber

Girls' High School, Boston

MATHEMATICS IN THE SECONDARY SCHOOLS OF GERMANY, II

In the September number of the SCHOOL REVIEW I have sketched the mathematical work of the secondary schools to a point commensurate with the beginning of the American high school course. Following the standard of the Cassel *Realgymnasium* the syllabus is as follows: *

UNTERTERTIA: I. *Geometry*, 2 periods. Theory of the triangle, polygon, and circle. Equality of figures. Constructions. Text-book, *Koppe's Planimetrie*.

II. *Arithmetic*, 2 periods. Reckoning with abstract quantities. Equations of first degree with one unknown quantity. Text-book, *Heis's Sammlung von Aufgaben aus der Allgemeinen Arithmetik*, §1–25; 61–63.

III. *Rechnen*, 1 period. Commercial arithmetic continued.

OBERTERTIA: I. Geometry, 3 periods. Reviews. Proportion. Similarity of figures. Relations and contents of rectilinear figures and circles. Pythagorean proposition. Text-book, *Koppe's*.

II. *Arithmetic and Algebra*, 2 periods. Review and extension of work of U III. Theory of proportion, powers, and roots.

* The Weimar course is as follows: *Untertertia*, 5 periods. Commercial arithmetic. Theorems of sum, difference, and product. The circle. Equality of figures. Proportion.—*Obertertia*, 5 periods. Compound division. Factoring. Equations of 1st and 2nd degree with one unknown. Square root. Similarity and measurement of figures. Algebraic geometry.—*Untersecunda*, 5 periods. Plane geometry concluded. Solid geometry. Powers, roots, and logarithms. Equations of 1st degree with more than one unknown quantity and of 2nd degree with one unknown. (Special tasks monthly.)

Equations of first degree with more than one unknown quantity and simple quadratic equations with one unknown. Text-book, *Heis's*.

UNTERSECUNDA: I. *Geometry and Trigonometry*, 3 periods. Elements of trigonometry; computation of triangles. The most important propositions. Solid geometry of the plane and straight line; simple bodies and computation of dimensions, surface, and contents.

II. *Arithmetic and Algebra*, 2 periods. Theory of logarithms with practice in logarithmic reckoning. Quadratic equations. Text-book, *Heis's*.

The geometry of the middle grades presents no striking peculiarities, as I have observed, beyond those of method common to the mathematical instruction in all classes. Euclid seems to find no greater recognition here than in America; the German's explanation is that the great Alexandrian wrote for men, not boys. The four years' course in plane geometry gives ample time not only for thorough grounding in the theory, but also for a variety of practical applications impossible in a shorter course or under a plan which does not provide for simultaneous exercise in arithmetic, algebra, and elementary trigonometry.

The course in arithmetic and algebra is practically a course in Heis's *Collection*. The book seems to be everywhere used, either as text-book or for reference. Since its first appearance in 1837 there have been some ninety editions, in all over 270,000 copies. The influence of this book—the work of a noted mathematician and astronomer—upon the teaching of two generations is clearly demonstrable, and to it may be ascribed many of the peculiarities in German methods. It contains no definitions, no rules and but very few typical solutions. Its strength lies in the systematic gradation of examples and problems, from the rudiments of addition to the involved types of equations of the higher degrees. The world over one will scarcely find four hundred pages of material more suggestive in treatment or richer in detail than this collection for use in the secondary schools of Germany and Austria. There are many other text-books, some of them most excellent, as Bardey's for instance—perhaps better than Heis's—but to a striking degree they are all modelled after the master-work. In describing the first 215 pages of the book the work of the

middle grades is described. Its richness and variety is apparent from the presentation in this space of over 2,700 examples, of which some 700 are practical problems. The number actually used by any one class is relatively very small.

The needs of the many who do not continue their schooling beyond *Untersecunda* determine a wider range of study in the middle grades than would doubtless be the case were *Oberprima* the Mecca for all.* Yet at every step the ideal is that theory and practice shall be united; neither factor may be sacrificed to the other. The conceptions underlying the theory of logarithms are not less important than skill in manipulating them; the ability to *think* even a short problem clearly to its conclusion is better than occasional success in finding "the answer" to problems intricate and confusing to the last degree. There is no greater danger in teaching than in overestimating the pupil's strength. Accuracy and facility in calculation and inference depend far more upon right thinking than upon correct writing. The mechanical skill necessary to note properly on paper or blackboard the essential headings of a mathematical demonstration is easily acquired when it is clear what is to be done. It is right thinking, then, that is to be emphasized; correct writing follows as a result. Every task that invites purely mechanical treatment, every problem too difficult for oral analysis, is a step in the wrong direction.

For the upper classes of the Cassel *Realgymnasium* the following courses are prescribed:†

OBERSECUNDA: I. *Geometry and Trigonometry*, 3 periods. Plane trigonometry and plane geometry reviewed and concluded. Solid geometry. Practical applications. Text-books, *Kopp's*; *Gauss' Logarithmic Tables*.

---

* Of 20,038 Prussian secondary pupils that left school in 1889-90, 4,105 completed the course, 8,051 went out at the end of U. II, and 7,882 from the lower classes.

† Weimar course: *Obersecunda*, 5 periods. Solid geometry. Equations of 1 and 2 degree with more unknowns. Determinants. Arithmetical and geometrical series. Compound interest and annuities. (Special tasks monthly.)—*Prima*, 5 periods. Permutations and combinations. Chance. Binomial theorem. Series—exponential, logarithmic, sine and cosine. Analytic geometry of the plane. (Special tasks monthly.) Perspective drawing and shading. Map projection.

II. *Arithmetic and Algebra*, 2 periods. Arithmetical and geometrical series. Compound interest and annuities. Quadratic equations with more unknowns. Permutations and combinations, binomial theorem applied to positive whole exponents. Text-book, *Heis's*.

UNTERPRIMA: I. *Geometry and Trigonometry*, 3 periods. Solid Geometry continued. Theory of plane and spherical angles. Spherical trigonometry and its application to mathematical geography. Conic sections. Text-book, *Koppe's*.

II. *Arithmetic and Algebra*, 2 periods. Continued fractions and applications. Arithmetical series of second order. Cubic equations. Problems of *maxima* and *minima*. Reviews. Text-book, *Heis's*.

OBERPRIMA: I. *Geometry*, 3 periods. Solid geometry reviewed and concluded. Analytic geometry. Problems in mathematical geography. Geometrical drawing.

II. *Arithmetic and Algebra*, 2 periods. Functions and applications to higher equations, especially those of third degree. Exponential, logarithmic and sine and cosine series. Practical applications. Text-books by *Koppe*, *Heis*, and *Gauss*.

It is not my purpose to dwell on details which may be found in practice in any good American school. For this reason the mere statement of what is done in the upper grades is sufficient. It is of more interest to know in how far these courses are actually followed and with what success. And here's the rub. No one school, no single type of schools, can adequately represent the work of all, and yet a norm of some kind is necessary. The *Oberrealschulen* are too few in number to set a standard—and besides their material is not the best; the ambitious parent is prejudiced in favor of the *Gymnasium*, the door of all that is desirable in civil and professional life, but if the boy cannot get on there the *Realgymnasium* and *Realschule* are next on the list—and on the other hand many classical schools make a farce of mathematics, the better the classics the worse for mathematics. The gymnasial course is concluded with quadratics and binominal theorem, the elements of solid geometry and plane trigonometry. But other things equal, the demands on the gymnasial master are as great as in the *Real*-schools owing to the restricted number of recitations—four a week, save in *Tertia*, where only three are given. To overcome this difficulty some teachers prefer to divide the time of *each* recitation equally between algebra and geometry. The objections are at once apparent. But ham-

pered as the gymnasial teachers are in many ways, I have been surprised to see how successfully the best of them master their environment. I am convinced, however, that the conditions which determine the highest results in mathematics are to be found in the *Realgymnasium* of *non*-Prussian states.

Pupils are promoted from class to class on the advice of the teacher. He has for his guidance the marks of the regular recitations, the pupils' note-books, and the monthly tasks done at home. Written examinations are held in some schools about once a month, the regular recitation period being used for the purpose, but so far as I have learned the practice is not general. The final examination of the course is both written and oral,* the latter being held by the master in the presence of a committee of his colleagues and the Inspector, *Oberschulrat*, of the province. The papers from the written test also after being read and marked ("very good, good, satisfactory, or unsatisfactory") by the master are forwarded to the inspector. In both written and oral examination mathematics is considered a main subject. In *Real* schools the test is undoubtedly efficacious and the results accepted as they stand, but everywhere gymnasial teachers are

* I give herewith the final written tests for the *Realgymnasien* of Cassel and Weimar at Easter, 1894:

CASSEL: *Time, five hours*—(1) A sphere with radius $r=15$ is cut by a plane a into two parts so that the entire surface of the one holds the relation to the other of $m:n=3:2$. What is the height of the smallest part? (2) Two stars appear to be at a distance of 17° 15′ from each other. The declination of the one is 21° 9′, of the other 35° 8′; what is the difference in right ascension between the two? (3) A parabola and a straight line have the equations, $y^2=4x$ and $y=x-3$. How large is the segment of the parabola which is intersected by the straight line? (4) $x-3=\sqrt{\frac{1}{x}-2}$.

WEIMAR: *Time, six hours.*—(1) Find a circle touching two given circles, one of them in a given point. (2) Given the longest side of a triangle equal to 25 cm, and the ratio $2:3:5$ of the radii of the three circles touching externally, find the other two sides, the angles and the radius of the inscribed circle. (3) A cone made of pine wood (sp. gravity $\frac{1}{2}$), whose radius and altitude are the same, has had $\frac{1}{8}$ of its volume cut off at the top. How far does it, with its base turned upward, go down in water? (4) Two ellipses, whose minor axes are as $1:\sqrt{2}$, have each the end of its major axis coinciding with the centre of the other. Find the coördinates of their points of intersection, and the condition of their being of the same length.

outspoken against the slight put upon their efforts under cover of these examinations. I am told that it really makes little difference whether or no a boy is proficient in mathematics if he knows his classics. The absence of an exact marking system forces the teacher of mathematics to join issues of judgment with his philological colleagues; in questions of pupils' maturity his opinion has small weight. The average boy is not slow to take advantage of all that comes his way. Indirectly, therefore, the best interests of a department are jeopardized; weakness is introduced where there should be strength.

Not only have examinations no terrors, but it is not generally recognized that a knowledge of mathematics increases one's chances of success in professional life. These factors all tend to make a complicated problem the more involved. And not all masters are teachers. The results in such cases are deplorable in any event, but especially so under German methods. When all depends upon the teacher and he fails, what is to become of the pupil? He has no incentives ideal or material to spur him on, and if he be a genius the very text-books discourage independence. The pupil must follow; he can neither lead nor go alone.

The German ideal is very high, though possibly none too high. But for ideal methods you must have ideal teachers, and no one will say that Germany has too many of such. Indeed, I am told that it is more difficult to find *good* teachers of mathematics than of any other subject. One cause is not far to seek. The German universities are founded on the classics. For three centuries, and more, a knowledge of Greek and Latin has been the *conditio sine qua non* of admission to university privileges. And to-day only graduates of the *Gymnasien* have full rights. Popular demands of the last few years have secured some concessions for the *Real* schools, but in each step the intellectual monopolists have fancied an encroachment on the dignity of learning. The medical fraternity, as individuals, would be glad of more and better training in science and the modern languages, but the pride of the profession demands Greek and Latin instead. What wonder then that questions of caste have arisen from the partizan strife over the rights of the secondary schools! It even enters the university and casts a shadow upon those courses fit only for *Real* school graduates. And what are these courses? *Mathematics* and *Nat-*

*ural Sciences!** The moral is plain. The teacher of mathematics has not the social standing of the philologian. Caste enters into the school life and the students see it. Nothing but the force of personality can break these bonds— a personality stronger than most men have. Or stated in another way, there is nothing inherent in the office of the mathematician to gain for him a social rank equal to that indissolubly connected with the humanistic studies. I speak especially of the mathematical post in the *Gymnasium*; in the *Real* school there may not be the same internal gradations but the school itself stands on a lower level. The outlook discourages the best candidates and as a result the mantle too often falls on men who have not the keen, clear-cut intellects so essential to success under the German system.

Despite these defects in particulars, there are excellencies in the German plan which no thoughtful teacher, no one charged with school management, can afford to disregard. The teacher is always a *trained specialist*. No man finds a post in a German school nowadays who is not master of what he purposes to teach; he has had, moreover, two years of professional training in theory and practice. And on the other side there are (1) the unity of the course, which is rendered still more effective by the interlacing and blending of the subordinate lines, (2) the emphasis put upon mental operation, and (3) the supreme end towards which all aims—*logical thinking*—these at least can be unreservedly commended. As for the German methods, the final question is, Does the pupil become an *independent* thinker? Granting good teachers my answers are, *No*—so far as the poorest are concerned; *Very doubtful*—for the average; but emphatically *Yes*—for the best in the class. To the earnest student the very consciousness of increasing strength and clearness of vision is of itself an incentive to mastery. He feels that he is getting something better than skill in the manipulation of symbols. The external operation is for him merely the record of his own thought, convenient and useful for the time being, but relatively unessential. "The life is more than meat, and the body is more than raiment."

James E. Russell

Leipsic, Germany

* Realgymnasiasts may also study the modern languages.

THE NEW HAMPSHIRE HIGH SCHOOL INSTITUTE

At the suggestion of several prominent teachers the New Hampshire Department of Public Instruction determined this year to hold a High School Institute or Convention previous to the general State Convention which meets in October. The belief prompting this innovation was that neither the secondary nor the elementary teachers received what they ought to get from the limited time hitherto devoted to the general convention; hence the divorcing of these two departments to the apparent advantage of each.

The Institute was held September 21 and 22 in the handsome new High School building of Concord, a place, by the way, admirably fitted for such meetings, and was addressed by Professor Weed of the Agricultural College and Principal Clark of Sanborn Seminary on Zoölogy and Botany, respectively. Each gentleman emphasized the desirability of more and better scientific work on lines suggested by the Conference of the Committee of Ten.

After papers on Latin and Algebra by State Agent McDonald of Massachusetts, a vigorous address on the teaching of English by Professor Richardson of Dartmouth College aroused some discussion.

The evening was occupied with an admirable address by Mrs. Alice Freeman Palmer of Cambridge on "The Relation of Parents and Teachers", which was listened to by a large number of parents and others interested from the city besides the teachers. The address was full of sympathy and encouragement for the teacher in the difficult parts of his work, and suggested a larger and more active coöperation with teachers on the part of the home.

But in some respects the most interesting and helpful paper of the series was Principal Goodwin's on "What Should the Small High Schools Attempt?" It outlined very clearly what the ambitious school *might* attempt, what many *do* attempt, and what they *should* attempt. The speaker's wide experience in teaching enabled him to understand fully the obstacles to the success of such a school. Out of Table IV of the Report of the Committee of Ten, Principal Goodwin thought the smaller schools might well select the Latin-Scientific course of study as the one from which they might expect the best and widest results. The paper deserved a larger audience than it had.

A rather unique feature of the Convention was the assignment of several "live" topics to various teachers and the discussion of them at odd intervals during the session. Among others Principal Rounds of Plymouth Normal School spoke at length of Modern Foreign languages in the high school. Perhaps the most interesting of these was President Tucker's address on encouraging boys to go to college. President Tucker distinctly disfavors advising all or nearly all boys to go to college; but thought the recent industrial depression might send some boy into school and thence to college who would, twenty years hence, prove himself far superior to his instructors in his power for good in the world.

The address stimulated some discussion and many questions on the part of the educators present and was the best of the ten topics set for discussion.

Principal Hastings discussed briefly the function of a principal; which consists in his usefulness as a skilled teacher, as a good organiser, and as a personal friend to his pupils.

The practical use of the Report of the Committee of Ten and Table IV of that Report were outlined by Principals Upton of Portsmouth and Whitney of Dover, respectively. The aim of the first paper was to show where our defects chiefly lie, how they may be remedied, and that the greatest benefit to be derived from the report is in the stimulus it affords to the individual teacher. The last paper, that on Table IV, was mainly devoted to a discussion of the relations of elementary to secondary schools and to showing that the fullest development of the latter is dependent upon the condition of the former.

The convention was largely attended and the interest well sustained. Altogether, Superintendent Gowing may well be congratulated upon offering to the teachers a programme so rich and suggestive.

Irving H. Upton

Portsmouth, N. H.

REFERENCES ON THE REPORT OF THE COMMITTEE OF TEN, AND ON THE POLICY OF THE STATE TOWARD EDUCATION

PREPARED FOR THE THIRTY-SECOND UNIVERSITY CONVOCATION OF THE STATE OF NEW YORK, AND PRINTED BY PERMISSION OF SECRETARY MELVIL DEWEY

ABBREVIATIONS

In reference to periodicals, volume and page are separated by a colon; *e. g.* 3 : 144-53 means vol. 3, beginning on page 144, ending on page 153.

Other abbreviations are:

ass'n association
bur. bureau
mag. magazine
proc. proceedings
rev. review
trans. transactions
univ. university
U. S. N. Y. University of the State of New York

REPORT OF THE COMMITTEE OF TEN

REPORT of the Committee on secondary school studies appointed at the meeting of the National educational association, July 9, 1892; with the reports of the conferences arranged by this committee, and held December 28-30, 1892. Washington: Government printing office, 1893. Issued as document 205, by the United States Bureau of education.

BANCROFT, C. F. P. Report of the Committee of ten, from the point of view of the college preparatory school. *Educational rev.* 7 : 280-85.

BRADLEY, J. E. Report of Committee of ten, from the point of view of smaller colleges. *Educational rev.* 7 : 370-74.

BUTLER, N. M. An important educational conference. *Harper's weekly* 37 : 1109-10.

——Reform of high school education. *Harper's weekly* 38 : 42-43.

——Reform of secondary education in the United States. *Atlantic monthly* 73 : 372-84.

CLARK, J. S. Art in secondary education: an omission by the Committee of ten. *Educational rev.* 7 : 374-81.

Committee of ten, report of (editorials). *Education* 14: 431-33, 497-98.

De Garmo, Charles. Report of the Committee of ten, from the point of view of educational theory. *Educational rev.* 7: 275-80.

Eliot, C. W. Report of the Committee of ten. *Educational rev.* 7: 105-10. *School rev.* 1: 603-18.

Harris, W. T. Report of the Committee of ten. *Educational rev.* 7: 1-10.

Harrison, Caskie. Secondary school studies. *Dial* 16: 102-3.

Hinsdale, B. A. Report of the Committee of ten. University of Michigan *Record*, February, 1894.

——Remarks as general introduction to discussion of the report of the Committee of ten. University of Michigan *Record*, April, 1894.

Huling, R. G. The reports on secondary school studies. *School rev.* 2: 268-80.

An important report (editorial). *Outlook* 49: 58-59.

Mackenzie, J. C. Report of the Committee of ten. *School rev.* 2, 146-55.

Parker, F. W. The use of the report of the Committee of ten for the improvement of teachers now at work in the schools. *Educational rev.* 7: 479-91.

Recommendations of the Committee of ten (editorial). *Intelligence* 14: 49.

Regulation of secondary education (editorial). *Nation* 58: 44-45.

Report of the Committee of ten (editorial). *Dial* 16: 35-38.

Robinson, O. D. Report of the Committee of ten. *School rev.* 2: 366-72.

Sachs, Julius. Report of the Committee of ten from the point of view of the college preparatory school. *Educational rev.* 8: 75-83.

Schurman, J. G. Report on secondary school studies. *School rev.* 2: 83-97.

A scientific guide (editorial). *Outlook* 49: 129-30.

Seaver, E. P. Secondary school studies in 14th annual report of the superintendent of public schools of the city of Boston, March, 1894. *School document no.* 4, 1894.

Smith, A. T. Report of the Oxford conference on secondary education in England. *Education* 14: 504-9

TAYLOR, J. M. Report of the Committee of ten. *School rev.* 2: 193-99.

WARNER, C. D. Secondary education. *Harper's mag.* 88: 963-66.

POLICY OF THE STATE TOWARD EDUCATION

ADAMS, C. K. Ought the state to provide for higher education? *New Englander* 37: 362-84.

BENEDICT, N. W. State aid to education—its proper scope and imitations. *U. S. N. Y.—Regents' report* 1880: 613-17.

BLACKMAR, F. W. Federal and state aid to higher education in the United States. *U. S. Bur. of education. Circular of information* 1890, *no.* 1.

BURTON, N. S. Higher education and the state. *Baptist quarterly rev.* 8: 481.

COWELL, C. D. Free school system. *American journal of politics* 3: 399-407.

CROWELL, J. F. Higher education in state constitutions. *U. S. N. Y. Proc. of Convocation* 1893: 334-43.

Democracy and education. *Dial* 14: 351-52.

Education land policy of the United States. *American journal of education* 17: 65-76, 28: 929-48.

EDWARDS, J. T. Educational legislation. *U. S. N. Y. Proc. of Convocation* 1893: 301-11.

FITCH, C. E. Higher education and the state. *U. S. N. Y. Proc. of Convocation* 1893: 311-26.

GERHART, E. V. Government in its relation to education. *Mercersburg rev.* 6: 275-92.

HERBERT, AUBERON. State education; a help or a hindrance? *Popular Science monthly* 17: 585-600. *Fortnightly rev.* 34: 42-57.

JONES, M. C. Our public schools,—the nation's safeguard. *American journal of politics* 3: 643-49.

KIEHLE, D. L. The educational trend of the northwest *Atlantic monthly* 71: 832-35.

KNIGHT, G. W. History and management of land grants for education in the Northwest territory. 175p. O. N. Y. 1885. (in American historical ass'n papers, v. 1, no. 3.)

LE SUER, W. D. State education and the "isms." *Canadian magazine* 2: 3-7.

MASON, J. W. Taxation for the support of common schools. *American journal of politics* 3: 590-96.

MAYO, A. D. Support of secondary and higher education by the state. *Education* 12: 262-70, 335-45.

Relations of the state to secondary and higher education. Discussion. *U. S. N. Y. Proc. of convocation* 1893: 343-50.

RICE, J. M. Plan to free the schools from politics. *Forum* 16: 500-7.

SHARPLESS, ISAAC. State and education in England and America. *American academy of political science. Annals* 3: 669.

State aid to academic institutions. *U. S. N. Y. Proc. of Convocation* 1872: 115-24.

——*U. S. N. Y. Proc. of convocation* 1873: 107-22.

The state and higher education. *Nature* 35: 457-58.

State education. *Metropolitan* 1: 154.

State education in America. *Westminster rev.* 127: 1-36.

State's duties in regard to education. *De Bow* 25: 417-30

STURTEVANT, J. M. State universities and colleges. *New Englander* 32: 453-67

TRUMBULL, M. M. Limits of state education. *American journal of politics* 3: 225-33.

WARNER, J. D. Popular expediency of state aid to intermediate education. *U. S. N. Y. Proc. of Convocation* 1893: 326-33.

UNIFORM ENTRANCE EXAMINATIONS IN ENGLISH LANGUAGE AND LITERATURE*

A committee of ten was appointed at the last annual meeting of the Association to consider the present usage in the matter of entrance examinations in English language and literature in the colleges of the Association, and to present, if deemed wise, a scheme of uniform entrance requirements in English, to be offered as suggestion or recommendation to the several colleges of the Association.

The first meeting of the committee was held at the University of the City of New York on Thursday, Friday, and Saturday, February 22, 23, and 24, 1894, and was called to order by the Chairman. Mr. William H. Maxwell was elected Secretary. All the members of the committee were present at the sessions. Circulars of inquiry were sent to the colleges of New England, the Middle States, and Maryland, and also to the preparatory schools of the same states, asking for a statement of experience in English work and for an expression of opinion as to the desirability of certain specified forms of entrance requirements now in use. The recommendations of the committee of ten appointed by the National Educational Association were in the main endorsed by the committee. The following recommendations in particular were favorably considered:

1. That any examination set should be based upon the reading of certain masterpieces of English literature, not fewer in number than those at present recommended by the Commission of Colleges in New England on Admission Examinations.

2. That certain of these books should be of a kind to be read by the candidate as literature; and that others—a limited number—should be carefully studied under the immediate direction of the teacher.

* Abstract of Report of Committee appointed at the meeting of the Association of College and Preparatory Schools of the Middle States and Maryland, December 2, 1893. The members of the Committee were: James W. Bright, George R. Carpenter, Wilson Farrand, Edward L. Gulick, James Morgan Hart, Roland S. Keyser, William H. Maxwell *Secretary*, Felix E. Schelling, Albert H. Smyth, Francis H. Stoddard, *Chairman*.

3. That each of the whole number of books should be representative, so far as possible, of a period, a tendency, or a type of literature; and that the whole number of works selected for any year should represent with as few gaps as possible the course of English literature from the Elizabethan period to the present time.

4. That the candidate's proficiency in composition should be judged from his answers to the questions set, which should be so framed as to require answers of some length and to test his power of applying the principles of composition.

5. That formal grammar and exercises in the correction of incorrect English should in no case be more than a subordinate part of the examination.

It was further agreed that the task of working out in detail the application of these general principles could be done by small subcommittees, which were then appointed. The general committee then adjourned, to meet in Philadelphia May 17, 18, and 19 at the University of Pennsylvania.

It will be noted that the conclusions reached seemed to make it impossible for the committee to adopt the system of requirements for admission now in use in most of the colleges of New England under the initiative of the New England Commission. The adoption of this system would have given the very great advantage of securing uniformity of usage in the colleges of New England and of the Middle States, and the argument in favor of adopting it was strong because the system had proved to be in many respects of practical value. But expressions of opinion to the effect that these requirements, useful as they had been, were no longer fair or complete tests of results of the best methods of teaching English, came in great numbers, and from persons of great authority, in reply to the requests for information sent out by the committee; and the conclusion was finally reached that a new system of requirements must be framed. To make such a scheme of requirements without the aid and co-operation of the New England colleges seemed unwise. Friendly correspondence was therefore opened with Professor Poland, Secretary of the Commission of Colleges in New England on Admission Examinations, and by the courteous invitation of that body the Chairman of this committee met the Commission for conference at its annual meeting, held in Boston, April 20. After some discussion, the Commission ap-

pointed a committee of three, consisting of Professor Winchester, of Wesleyan University(Chairman), Professor Albert S. Cook, of Yale University, and Professor Le Baron R. Briggs, Dean of Harvard College, to meet in Philadelphia, May 17, and to act in co-operation with the representatives of the Middle States and Maryland. By a subsequent action of the Association of Colleges and Preparatory Schools of New England, Mr. John Tetlow, Head Master of the Girls' High and Latin schools of Boston, and Mr. W. C. Collar, Head Master of the Roxbury Latin School, were appointed as delegates to represent the New England Association at this Philadelphia conference.

This Conference recommends:

1. That the time allowed for the English examination for entrance to college be not less than two hours.

2. That the books prescribed be divided into two groups—one for reading, the other for more careful study,

3. That in connection with the reading and study of the required books parallel or subsidiary reading be encouraged.

4. That a considerable amount of English poetry be committed to memory in preparatory study.

5. That the essentials of English Grammar, even if there is no examination in that subject, be not neglected in preparatory study.

Although the Conference believes that the correction of bad English is useful in preparatory study, it does not favor an examination in this subject as a requirement for admission to college.

The Conference recommends that the following scheme of entrance requirements in English be adopted by the various colleges.

Entrance Requirements.

NOTE.—No candidate will be accepted in English whose work is notably defective in point of spelling, punctuation, idiom, or division into paragraphs.

1. *Reading.*—A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject-matter, and to answer simple questions on the lives of the authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to test the candidate's power

of clear and accurate expression and will call for only a general knowledge of the substance of the books. In place of a part or the whole of this test, the candidate may present an exercise book, properly certified by his instructor, containing compositions or other written work done in connection with the reading of books.

The books set for this part of the examination will be:

1895: Shakespeare's *Twelfth Night*; *The Sir Roger de Coverley Papers* in *The Spectator*; Irving's *Sketch Book*; Scott's *Abbot*; Webster's *First Bunker Hill Oration*; Macaulay's *Essay on Milton*; Longfellow's *Evangeline*.

1896: Shakespeare's *A Midsummer Night's Dream*; Defoe's *History of the Plague in London*; Irving's *Tales of a Traveller*; Scott's *Woodstock*; Macaulay's *Essay on Milton*; Longfellow's *Evangeline*; George Eliot's *Silas Marner*.

1897: Shakespeare's *As You Like It*; Defoe's *History of the Plague in London*; Irving's *Tales of a Traveller*; Hawthorne's *Twice Told Tales*; Longfellow's *Evangeline*; George Eliot's *Silas Marner*.

1898: Milton's *Paradise Lost*, Books I and II; Pope's *Iliad*, Books I and XXII; *The Sir Roger de Coverley Papers* in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *Ancient Mariner*; Southey's *Life of Nelson*; Carlyle's *Essay on Burns*; Lowell's *Vision of Sir Launfal*; Hawthorne's *The House of the Seven Gables*.

II. *Study and Practice.*—This part of the examination presupposes the thorough study of each of the works named below. The examination will be upon subject-matter, form, and structure.

The books set apart for this examination will be:

1895: Shakespeare's *The Merchant of Venice;* Milton's *L'Allegro, Il Penseroso, Comus,* and *Lycidas;* Macaulay's *Essay on Addison*.

1896: Shakespeare's *The Merchant of Venice*; Milton's *L'Allegro, Il Penseroso, Comus, and Lycidas;* Webster's *First Bunker Hill Oration*.

1897: Shakespeare's *The Merchant of Venice*; Burke's *Speech on Conciliation with America*; Scott's *Marmion*; Macaulay's *Life of Samuel Johnson*.

1898: Shakespeare's *Macbeth*; Burke's *Speech on Conciliation with America*; De Quincy's *The Flight of a Tartar Tribe*; Tennyson's *The Princess*.

The Conference recommends that the following scheme be offered as a suggestion or recommendation to colleges desiring to set an advanced examination in English.

Advanced Examination.

NOTE.—The candidate may choose either I or II.

I. A detailed study of a single period of English literature, and of not fewer than three authors belonging to it; as, for example, of the age of Queen Anne, with special reference to Pope, Swift, and Addison.

II. (*a*) Old English (Anglo-Saxon), chiefly simple prose and grammar, *or*

(*b*) Chaucer: *Prologue*, *Knightes Tale* and *Nonne Prestes Tale*, including vocabulary, inflection, and prosody.

The Conference further recommends that the Commission of Colleges in New England on Admission Examinations, the New England Association of Colleges and Preparatory Schools, and the Association of Colleges and Preparatory Schools of the Middle States and Maryland, each appoint a committee of Conference to prepare, in joint session, lists of books for entrance examinations in English subsequent to the year 1898, to consider such other business as may properly come before it, and to report the conclusions reached to the bodies named above.

In presenting this report the committee deems it wise to offer a few words in explanation of the separate sections, in order that intelligent action may be taken upon the report as a whole.

1. The inquiries made by the committee lead to the belief that the preparatory schools desire the limits of the English examination to be closely defined. To meet this desire, as well as to promote the critical study of English literature, the books set for examination are divided into two classes: those to be read chiefly for their substance—that is, their literary or historical value—and those to be studied in detail with regard to diction, literary structure, and grammatical forms, as well as with regard to subject-matter.

2. The system of examination suggests principles upon which selections of books can be made. In order not to disturb existing courses in the preparatory schools, the books set in the requirements under the years, 1895, 1896, and 1897 are identical with those named in the present New England list. In the selections for 1898 certain distinct periods and types of literature are represented, historical sequence is considered, and prose and poetry have about equal representation. A recommendation for a joint

committee of selection for subsequent years is elsewhere embodied in this report. It is the opinion of the committee that the division into the two classes mentioned in section one and the adoption of definite principles of selection will prove of distinct advantage in making lists for future years.

3. The system suggested is a useful one for an association such as that of the Middle States and Maryland, which has in its membership colleges, scientific schools, and institutions somewhat diverse in character. The requirements can be divided, and thus flexibility of amount as well as uniformity of kind can be secured in preparatory school work. In some institutions desiring a less extended test, either section one or section two can be made to stand for the entire requirement in English. In other institutions the first section may be offered as a preliminary examination.

4. The system suggested gives opportunity for examination by presentation of original note-books certified by an instructor, containing the record of work done by the pupil when reading the books set and containing essays written on topics taken from the books read. This method, usually spoken of as the "Physics Method," is strongly urged by many teachers. The committee is not prepared to advise that the note-books be in any case taken as a substitute for the whole entrance examination, but is inclined to the opinion that the method can in many cases be employed to advantage in testing a portion of the work.

5. The requirement suggested for advanced examination, when such examination is found desirable, is one which does not conflict with the ordinary admission requirement and does not anticipate any part of the English work usually required in college. In presenting this requirement it may be well to say that it is not thought probable by the committee that any very general demand now exists for a system of advanced examinations in English. Yet in several institutions the plan of permitting advanced standing to be taken, on passing tests known as advanced examinations has been for some years in use in Latin, Greek, German, and French, and in mathematical and scientific branches, and has been successful in enabling earnest students to obtain the greatest possible benefit from their college and university work. The committee, therefore, feels that the present is a favorable time for the formulation of such a requirement for English work.

COMMUNICATION

To the Editors of the School Review:

The following extract from a recent letter of a teacher in one of our largest preparatory schools is a sample of the reports that are coming in from all sides: "We are interested in three [pupils] who have come from two years of 'Inductive Method', one of whom can't tell what *post ejus mortem* means, and all of whom are absolutely inaccurate. Evidently the work was not done 'by skilful hands'!" The astonishing dearth of "skilful hands", which the introduction of this method has revealed, reminds us of the reasons why that excellent animal, the zebra, has not been more generally used as a family horse.

Yours,

Benjamin I. Wheeler

Cornell University, Oct. 13, 1894

BOOK DEPARTMENT

A full description of the books received, giving size, price, etc., will be found in the list of "Publications Received" in this issue, or, generally in a preceding issue of the SCHOOL REVIEW.

The Study of the Biology of Ferns, by the Collodion Method. For Advanced and Collegiate Students. By GEORGE F. ATKINSON, Ph. B., Associate Professor of Cryptogamic Botany in Cornell University. pp. xii+134. Macmillan & Co., 1894.

Professor Atkinson's book on the Biology of Ferns, since the first announcement that such a work was in progress, has been looked for with interest by botanists every where. Now that it has appeared it is certain to meet fully all expectations. As a book designed for the use of collegiate and advanced students, as is stated on the title page, it is in two respects unique. In the first place the fine drawings could not be faithfully reproduced except by the use of heavy paper of the best quality, and this the publishers have supplied. As a result we have a book which of its kind, has probably no equal as regards typography, illustrations, and general workmanship. In the next place the copious illustrations, 163 in number, many of them elaborate, are all from original drawings made by the author especially for this work.

The book is divided into two parts, the first being devoted to a description of ferns in their various stages of development and growth. The author begins with the spore, the structure and germination of which are first considered. The development of the prothallium is then traced, and so on through all the successive stages until the fern plant, with its various organs, has been formed and the spore again produced. Nowhere do we find so clear an account of the life history of ferns as is here given, either as regards the verbal description or the illustrative figures. Nor is the book wanting in important additions to our knowledge of the group of plants to which it is devoted. Thus, for instance, a great deal has been added to what was previously known concerning the wonderful mechanism provided for the dispersal of spores.

In the second part we have presented the methods of study pursued by the author in his laboratory. Here an important feature of the work is termed the "Collodion method", in which the exceedingly delicate tissues of ferns are so prepared that sections for microscopic study may be made with scarcely any disturbance of the structure. The value of the method is shown in the excellent preparations from which all the drawings for the book were made. Indeed, a number of these preparations were made by

special students in the author's laboratory. This fact is of further significance as showing the splendid opportunities for advanced biological study here placed within the reach of students. The second part of the book, as a whole, constitutes a somewhat concise but excellent laboratory guide for the study of ferns, beginning with the material to be used, and explaining the successive steps until the finished preparation has been studied and figures drawn. An unusually full bibliography and an excellent index complete the work.

The author has been consistent with the title of his book, whereby no fault can be found with his use of the much misused term, "biology". It concerns only the biological aspects of ferns, no attention being given to systematic or taxonomic considerations. But the author does not fail to point out the importance of the group as a subject of study with reference to its relations to plants both higher and lower in the scale of development. Although the work is specialized and technical, as it sets out to be, it is nevertheless one which may be profitably studied by those who are mainly interested in ferns from a taxonomic standpoint, or regard them with favor on account of their beauty of form and appearance. Altogether the "Biology of Ferns" is a book fully abreast of the times, and embodies all that is best in modern biological study. It will of course find a place in the laboratories and libraries of all of our colleges and higher institutions of learning; but it also ought to be placed within the reach of such teachers in academies and high schools as are called upon to give instruction in botany for although they may not be able to follow all the book presents, their views of plants and of the methods of their study will surely be broadened and the value of their instruction thereby increased.

A. N. Prentiss

Cornell University

An Introduction to the Study of Society. By ALBION N. SMALL, Ph. D., Head Professor of Sociology in the University of Chicago and GEORGE E. VINCENT, Vice Chancellor of the Chautauqua System of Education. New York, Cincinnati, Chicago: American Book Company. pp. 384.

The above named work is based on the "system of Schäffle, the principles of which this manual seeks to place within reach of American students" (p. 18). It "covers only a small fraction of General Sociology. . . . . It might be described as a method of Contemporary Descriptive Sociology" (do.). Elsewhere (p. 62) Descriptive Sociology is defined as "the organization of all the positive knowledge of man and of society furnished by the sciences and sub-sciences now designated or included under the

titles, Biology, Anthropology, Psychology, Ethnology, Demography, History, Political and Economic Science, and Ethics." The work attempts "an analysis of contemporary society as it is found in the more advanced civilization of Europe and America."(p. 138) It is divided into five books on the Origin and Scope of Sociology, the Natural History of Society, Social Anatomy, Social Physiology and Pathology, and Social Psychology. It is intended as a text-book for beginning classes in colleges and academies. The treatment aims to be elementary and lucid, and the authors are to be congratulated on the success which they have attained. It seems, however, almost too elementary for the average college or university class with which the writer is acquainted and to obtain lucidity at times by passing slightly over questions of fundamental importance to Social Science. For example there is in the book no discussion at all of the concept of social law and of the question whether we may apply the concept of law to social phenomena in the same sense in which it is applied to natural phenomena. When we compare this silence with the following statement of Professor W. G. Sumner in a recent article on Sociology "the conception of a natural law (which is the most important good to be won from studying natural science) . . . . . is hardly yet applied by anybody to social fact and problems" the difference of emphasis is clearly marked. The detailed statements of the book so far as they have been tested seem in general accurate. But one cannot but call in question the assertion "that a large proportion of immigrants to the United States is trained for industrial pursuits rather than for agriculture" (p. 283), and the further assertion that "the family is an outgrowth of the gregarious instinct"(p. 319), as hasty or questionable generalizations. The book, however, is a new effort in a field hitherto unworked, and as such is to be cordially welcomed and its shortcomings to be readily condoned.

W. F. Willcox

Cornell University

Six Months' Preparation for Reading Caesar. By FREDERICK B. RICHARDSON, A. M., of the Cutler School. New York: Holt & Co.

The object of this little book of 120 pages is to prepare pupils in the shortest possible time for reading Caesar. Following Milton's suggestion, that "all the grammar necessary for a pupil to learn can be put into seven pages", the author omits many discussions that fill up elementary books. This is a wise method. It is absurd to present children with numerous exceptions to rules, or to stuff into elementary text-books philological lore, as is sometimes done, apparently through fear that the maker of the

book may not take a suitable rank in the learned world. Still it would be a mistake to suppose that this book is deficient because it is small. It contains all that is necessary for the purpose proposed. The verbs are given in the indicative and subjunctive entire, beginning with the first conjugation. This has its advantages, preventing the piecemeal view of the verb which is sometimes impressed upon the young mind. All through the treatment of the verb the pupil is told, in building the tenses, to give their meaning at the same time. We regard this as good practice for a beginner. The exercises are short; some may consider them too short, yet they seem to be long enough to accomplish the purpose of bringing the child early to connected reading. Instead of the principal parts of verbs the author insists upon giving the three stems, the present, the perfect, and the perfect participle. He also gives, in his vocabularies, the stem only of nouns and adjectives, instead of their nominative cases. It is claimed that by this method half the time necessary for learning vocabularies is saved. Inasmuch as dictionaries and grammars are not arranged in this way; and the nominatives and principal parts must finally be learned, we doubt whether, in the end, very much is thus gained.

The "models" for studying a Latin sentence, and for translating an English sentence into Latin, which are placed at the end of the book, with perforated fastenings, are very practical. If, in spite of recent recommendations, Caesar is to remain as the first step in Latin reading, this book seems well adapted to introduce pupils to his style and thought.

Rutger's Grammar School — *E. R. Payson*

Geology, a Manual for Students in Advanced Classes and for General Readers. By CHARLES BIRD, Head Master of the Mathematical School, Rochester. pp. 429. London: Longmans, Green, & Co., 1894.

This is one of a series of Advanced Science Manuals published by Longmans, Green, & Co. An opening chapter on the method of geological study is followed by an account of Minerals, Rocks, the "Industrial Uses of Rocks", "Weathering of Rocks and Agricultural Geology". Then come the usual subjects in dynamical geology and a review of geological history, with closing chapters on the "Distribution of Life on the Earth in Times Past and Present", "Minerals and Mining", "Scenery", and "The Ice Age and Its Course". Each section is followed by a "Summary" and a series of questions, and at the close are appended some sample examination papers. The author's style is clear and his definitions and descriptions usually exact and good. The present advance

of the science is in the main well reflected, as may be seen in the theories of coral islands, the comprehensive though brief review of opinions about the earth's interior, and the discussion of the nature, formation, and uses of fossils. The error as to western ravines with "perpendicular sides nearly a mile deep" is still propagated, and we find sponges in the Coelenterata, Polyzoa, and Brachiopoda classed with Mollusca, and no notice of recent discoveries of the appendages of trilobites. The lack of bibliographic references lessens the value of the book for advanced students, but the volume is one of the very best for the general reader. Teachers are often asked to name a popular and readable book on geological subjects. This publication makes the answer easier.

Albert P. Brigham

Colgate University

Encyklopadisches Handbuch der Padagogik. Edited by W. REIN. Hermann Beyer & Sons, Langensalza.

The appearance of the *Encyklopadisches Handbuch der Padagogik* edited by Professor W. Rein of Jena is an event of much interest in the educational world. Following a common German practice, in cyclopædias, the work is to appear in 48 parts of 80 pages each and is intended to be bound in four volumes. The parts appear monthly; the first two are now at hand. The encyclopædia treats of subjects that belong to systematic pedagogy. The work will be confined for the present at least to German school systems, foreign subjects being excluded almost entirely. The list of contributors now contains the names of some 150, among them many of the best known German writers on education, including among others Professor Paulsen, Dr. Von Sallwürk, Professor Schiller of Giessen, Professor Uhlig of Heidelberg, Professor Willmann of Prague, Professor Gartner of Jena, Dr. Hornemann of Hannover, Professor Meng of Halle. The first part deals mainly with subjects that seem to us a bit fanciful, such as Begging Pardon of Children; Hardening of Children; Disgust; Partiality. The two articles of general interest being Provision for Aged Teachers in the Private Schools in Germany; Aged Male Teachers and Provision for Aged Women Teachers in Germany. The second part contains valuable articles on Object Teaching; Contagious Diseases; Apperception; Home Work; Arithmetic; Association and Reproduction of Ideas. These few titles out of a total of some 50 subjects treated in 160 pages give an idea of the scope and thoroughness of the work.

C. H. T.

Velleius Paterculus. By FRANK ERNEST ROCKWOOD, A. M., Professor of Latin of the Bucknell University. pp. xxii+170. New York: Leach, Shewell & Sanborn.

The activity of editors has made it possible for the college man of to-day to read Latin authors whose names even were unknown to good students a few years ago.

This book of The Students' Series of Latin Classics contains chapters 41–131 inclusive of Part II of Velleius's work. These chapters treat of that portion of Roman history in which Julius, Augustus, and Tiberius Caesar were the prominent actors.

The introduction has a sketch of the life of Velleius, a survey of the more marked characteristics of his style—that of the transition period from the golden to the silver age—a history of the Murbach codex upon which all the editions are based, and a summary of the contents.

The notes are full. They give, not so much mere translations of the text as the departure from classic usage, and explanations which make the historic setting clearer and more complete. A critical appendix gives and discusses the many variations of texts caused for the most part by the efforts of editors to supply words where the minor lacunae of the original manuscript introduced uncertainty. An index to the notes is an aid to critical study; so also is a genealogical table of the succession in the imperial family down to 68 A. D. The paper, binding, and typography are good.

Marion Collegiate Institute *W. Carleton Tifft*

The Elements of English Grammar. By ALFRED S. WEST. Cambridge University Press. New York: Macmillan & Co.

A text-book in English grammar that contains just enough of comment and illustration to make the principles of the language definite yet comprehensible is a rare find. This is what Mr. West aims at, and well nigh attains. A volume of less than three hundred pages, it does not profess to be a complete manual of the English language; it furnishes just such facts as are needed by students graduating from secondary schools. Special care was evidently taken to omit all superfluities, and sometimes logical accuracy is sacrificed to intelligibility. But the latter is attained to such an extent that the veil is lifted from many mysteries that are usually relegated to the larger works. Much useful information is given in the historical survey, of the first few chapters, as well as in the subsequent discussion of the sounds and signs of the language. The author has done a favor to students of English in every sphere, for as a concise reference book, the work is complete, and as a text-book it would be of great value in supplementing the bare elementary knowledge obtained in the early stage of the preparatory course.

Colgate Academy *E. W. Smith*

NOTES

Littell's Living Age has reached its 202d volume, and 2621st number. It is a very notable eclectic magazine. The contents are carefully selected and always possess high literary qualities.

The Atlantic for October has an interesting travel sketch *A Russian Holy City*, by Isabel F. Hapgood. *African Exploration and Travel* deals with all the notable new contributions to our knowledge of the Dark Continent.

The Century for October contains two articles of travel of special interest, *Where the Teak-Wood Grows*, and the concluding installment of *Across Asia on a Bicycle*. The first incidentally to the description of a far-away curious industry gives very good advice as to the care of our forest treasures. The second records an interesting interview with the great Li Hung Chang.

Two notable educational articles are to appear in the November *Popular Science Monthly*. The one on "Preparation for College by English High Schools, written by John F. Casey, of the Boston High School, shows what boys who enter Harvard without Greek are doing. The other is the first of a series on "Manual Training" by Dr. C. Hanford Henderson, who is well known to the readers of the *Monthly*.

Harper's for October opens with a splendid travel sketch "Lahore and the Punjaub" by Edwin Lord Weeks, who also furnishes the numerous fine illustrations. "Golf in the Old Country," by Caspar W. Whitney, does ample honor to the great British game and the "Golfing Spirit". The article will be read with keen enjoyment by all interested in athletic sports, but gives no evidence that Golf will soon or ever become popular in the United States.

The publishers of *McClure's Magazine* have secured the use of the Hon. Gardiner G. Hubbard's great collection of Napoleon prints. This is one of the most important collections of its kind in the world and represents the results of many years of collecting. One hundred and fifty of these pictures have been selected and will be published in six issues of *McClure's Magazine*, beginning with November. Most of the pictures will be full page, and the series will constitute the most important and most complete collection of Napoleon ever publish ed.

Professor Skeat's splendid edition of *Chaucer* has now reached the fourth volume, which is devoted to The Canterbury Tales. The text is an entirely new one, but founded entirely upon the six-text edition published by the Chaucer Society under the supervision of Dr. Furnivall. Three minor poems which the editor only discovered on June 4 and 5, 1894, are inserted at the beginning, viz.: Womanly Noblesse, Complaint to my Mortal Foe, and Complaint to my Lode-Sterre. The incomparable excellence of this edition makes criticism impertinent and praise superfluous. (Macmillan & Co., New York and London. $4.00 a volume.)

The Back Lot Studies Society, of Evanston, Illinois, may perhaps be deemed worthy of imitation. This society was organized in February, 1891, at the suggestion of Mr. Volney W. Foster, with the intention of giving a selected number of lads from 14 to 18 a series of talks from business and professional men upon practical subjects. Its meetings are held weekly in the shelter belonging to a tennis court in the rear of Mr. Foster's residence, on a ground familiarly known as the "Back Lot". This gave the name to the society. The membership consists of sixty-five. Most of the members are in the High School. They are selected on the ground of their assumed ability to profit by talks which require close attention and an intelligent interest. Instruction and not amusement is sought. The general public has manifested great interest in the society, and prominent business men of Evanston and Chicago have cheerfully contributed their time to its support. A similar society for girls has been proposed.

Dr. L. R. Klemm, of the United States Bureau of Education, prepares and William Beverly Harison, New York, publishes a series of *Relief, or Raised Practice Maps for Pupils*, which deserve special attention. The maps are made in two forms—the cheaper ones of plain stiff paper similar to drawing paper (these are to be substituted for and used as outline map-blanks), the others of a stiff cardboard covered with a durable water-proof surface that can be quickly cleaned with a damp sponge, adapted to receive a succession of markings and cleansings. Oceans, lakes, and rivers, as well as land, appear in the same color, white, so as to facilitate the use of the map as *geographical slate*. These relief practice maps of all the continents, of the United States, and of several subdivisions, will be followed by maps of England, the Roman Empire, etc. They may be slipped into the text-book, to be carried to and from the school without trouble. Teachers will do well to send for the pamphlet describing their use. They are the work of a specialist in education, and can be made to serve many useful purposes.

CURRENT EDUCATIONAL LITERATURE

*The Commercial High School as a part of Secondary Education**

It was with great pleasure that I responded to the invitation of your Committee to present in person to your consideration the project of a Commercial High School.

All citizens of Philadelphia may well take pride and satisfaction in the evidences of a new interest in our civic life which are manifesting themselves on every hand. Everything which has for its object the improvement of our beloved city may now count on a respectful hearing at least —not merely from the select few who, in all communities are concerned about the common weal; but as well from the great mass of our citizens, rich and poor alike. Public interest in our water supply, in our gas supply, in improved pavements, in our parks, in our city administration in general, is growing at an appreciable rate, while public education is just now receiving such marked attention in every branch, as justifies the hope that its interests are to be looked after more carefully in the future than the past.

As I was asked to present this subject to an audience composed both of educationists and of representatives of other callings in life, brought together by a common interest in that most important of all public questions— education, I shall pursue mainly two lines of thought, considering, first, the relation of such an institution to the educational system in general, and second, its relation to the business interests of the community.

And first, as to its educational or pedagogical aspects. All secondary education should have a liberal tendency. Its main object should be to train the pupils to think, to aid them in getting possession of all their powers, and in acquiring habits of order, neatness, promptness, and fidelity. It should be regarded in a pre-eminent sense as a foundation upon which the pupil may build safely and rapidly in the future years. For a long time, men thought that the study of the classics and mathematics was the only method of laying such foundations, and even now the influence of that idea still remains powerful in the field of secondary education.

---

* Abstract of address by Professor Edmund J. James before the Educational Club of Philadelphia.

This idea did comparatively little harm as long as the mediæval conditions of life, in which the idea originated, still existed. But when the modern era opened and natural science with all its wonderful achievements started into life, it was only with the very greatest difficulty that it could secure any representation whatever in our schools and colleges, owing to the prevalence of the idea above mentioned. The adherents of the old style of education were not content with preserving it as one of the pathways toward culture—side by side with education based on modern subjects—but they insisted that it should still remain the only one.

The attempt was, of course, predoomed to a failure—as surely as the later contest of the stage owners and stage drivers against the railways—but it served to hinder progress for a long period. Natural science, however, finally made its way into the schools and a road to culture was cast up, based on modern subjects.

The history of education repeated itself again immediately. The defenders of the old and the champions of the new education combined to prevent any further innovations. The representatives of natural science joined with the defenders of the classics in maintaining that there are only two roads to true culture—the classics and natural science. An illustration of this tendency was afforded in our own city a few years ago when the movement in favor of Manual Training High Schools was begun. These two parties united in opposing the introduction of the so-called Manual Training Schools on the ground that their curriculum could offer no suitable intellectual training. But the Manual Training Schools are demonstrating that there is still another road to culture besides that through the classics, mathematics, and natural sciences—in the narrow sense in which the last term is sometimes used.

And now those of us who believe in the training furnished by the Commercial High School as one of the legitimate avenues to education, maintain that there is still another highway to that state of mind and heart known as culture. Just as the study of human history—as expressed in language and literature; or as the study of the external world, as in natural science; or as the study of the principles of mechanical and artistic creation may lead the child on to the fullest development of its powers—one line of work appealing to one child and another to another; so the study of human history, as revealed in the relation of man to his environment, looked upon as a means of supplying his wants (Political Economy), and the study of human history as revealed in the development and organization of the complex machinery of business and society

(Politics and Sociology) are as truly means of mental development as any of the preceding; and appeal to some children, to whom any of the former is weariness of the flesh.

And just as the study of the classics will accomplish the highest educational result for one type of mind, and that of natural science for another, and that of mechanics and art for another, so that of politics, and economics, and business will do it for still another.

As educationists, we plead for this school in the interest of the educational enrichment of our scheme of public training. There are boys in our community to whom none of the existing courses appeal, whom this course would be a means of awakening, arousing, training, educating.

To put it another way, all of us believe that a proper educational foundation is absolutely necessary, and that the period of secondary education is the time for laying such foundation; but we cannot concede that there is only one kind of proper foundation. On the contrary, just as the character of the soil and the surrounding circumstances make a foundation which would be suitable for one building entirely unsuitable for another, so the variety in the structure of boys' minds, in their tastes, their inherited tendencies, their ambitions, point to the fact that no one scheme of education can lay suitable foundation for all boys in the community.

Variety of schools and of courses is, in our view, absolutely necessary to develop the latent intellectual wealth of society. These courses should all be thorough, liberal, culture-giving—and there should, in the interest of education itself, be at present in Philadelphia at least four such schools —one devoted to Language, Literature, and Mathematics; another to Mathematics and Natural Science; another to the principles underlying mechanical and artistic creation; and still another to Politics, Economics, and Business. The first two exist now in the Central High School, though it would be better if they were separated. The third is provided for by our Manual Training Schools; the fourth we are arguing for at present It is not proposed that any one of these courses should exclude all the elements of the other. Quite the contrary. Each one would contain necessarily much that is found in the others; but it is meant simply, that the various courses shall be built up around the nuclei indicated.

It will thus be seen that while we argue for a Commercial High School, which shall answer the wants of a new class in the community, we are not asking for a trade school in any different sense from that in which the Central High School or the present Manual Training Schools are technical

or trade schools. The object of all three alike is liberal education, is foundation laying; the only difference is in the subject matter of instruction used for the purpose.

Manifold and complicated are the conditions which determine the commercial prosperity or decadence of a city or a country—and he who assigns any one reason for it demonstrates his incapacity in this department of human investigation. Without wishing to assign too much importance to the following consideration, we may yet claim that it is a very fundamental condition of a flourishing trade that the directors of commerce and industry—those selected few, who by their natural talents and acquired skill have become the captains and princes in industry and trade—shall find it possible to obtain efficient assistance in their enterprises. The average man and woman in our society will never reach a loftier position than that of high private; but the possibility of achievement on the part of great commanders, whether in war or trade, depends primarily upon the degree of intelligence and efficiency to be found in the average private.

Is there an adequate provision for this need in our community? Does the director of business enterprises find it easy to find the right kind of assistance? Ask any intelligent and successful business man among your acquaintances. I am not talking now, of course, of clerks, or stenographers, or typewriters, or bookkeepers—whose business is largely mechanical; though even in this department it is safe to say that of fifty candidates for any fairly responsible position, not more than five can be considered eligible. I am thinking of positions which demand fidelity, intelligence, special knowledge, and sound judgment—responsible and discretionary positions in other words—positions in which initiative enterprise and reliable qualities are called for. I take it that there can be only one answer to this question, unless Philadelphia experience has been very different from that of business men in other cities and other countries.

My proposition then is that a school of the grade of the ordinary city high school—say our own Central High School, for example—whose curriculum should be made up to a considerable extent of subjects relating to modern trade and industry—its origin, development, organization, relations, etc.,—would do a substantial service to our trade and commerce by increasing the number of properly qualified young men who are seeking the positions of assistants in our commercial houses.

Of course, no one will maintain for an instant, that such a school could turn out young men acquainted with the details of commercial life, and qualified to take positions at the head of important branches of business—such knowledge and fitness can only be acquired in actual business life, and through the experience of years. But it could turn out young men, seventeen or eighteen years of age, with a deep interest in commercial life, with considerable knowledge of the general history of commerce, with some acquaintance with the most important operations of modern commercial business, with some knowledge of finance, with a good English education, and with an ambition to succeed in commercial undertakings—in a word, a band of youth ready to enter upon the work of acquiring business experience with eagerness and enthusiasm. The training which such a school could furnish would enable a lad to learn the business more thoroughly and in a shorter time than he could have done without such advantages. Such a school would, moreover, offer an opportunity to learn modern languages thoroughly, so that those boys who wished to prepare themselves to represent our firms abroad, could find good facilities for such education.

The value of a Commercial High School to the trade and commerce of a community has been amply demonstrated by a somewhat extended experience in continental countries. In the Europe of to-day, the law of competition is at work in the extremest form. The struggle of France and Germany and Italy and Austria and Russia for the supremacy in Europe has become so bitter and all absorbing, that no means of getting ahead is left unused. The ordinary methods employed in the military sphere are striking, and so well known as to call for no mention. But the methods in the industrial sphere are no less striking and fundamental—passing over the question of prohibitory and differential tariffs, which have been used in the most unsparing way—it is sufficient for us, in this connection, to direct attention to the evident belief, on the part of all the nations, that other things being approximately equal, the question of education is the fundamental question, and that that nation will ultimately triumph which secures the best educational results. Consequently, schools of all kinds have been established and developed, including military schools, to train soldiers and officers; agricultural schools to train farmers, who, by reason of intelligence, can hold their own against America and India; industrial schools of all sorts to train mechanics, foremen, etc., and finally, recognizing the importance of Commerce to Industry, commercial schools of all grades, from those intended to train

stenographers, clerks, shop girls, etc., to those for the future directors and managers of great business firms.

In proportion as competition has increased at home and abroad have these schools been multiplied. Only within a short time the German Government established, in Berlin, a school where youth, preparing for business careers in Asia, could learn all the leading languages of Eastern and Western Asia, including Chinese, Japanese, Arabic, and Turkish. France has done much the same, and in both countries there is the keenest rivalry in providing facilities for their youth to learn the leading modern languages spoken in the Western World, especially English, Italian, and Spanish. Belgium, which is so largely dependent for its prosperity on foreign trade, is following rapidly along the same line.

In Germany, the apprenticeship system in the business houses is still preserved, and the laws enable a parent to hold a merchant to a pretty close account for his duty toward the apprentice. But in spite of this fact, the popularity of the Commercial High School is rapidly increasing, because it is recognized that it offers a training for which the apprenticeship system is no adequate substitute. Many merchants allow youth in their employ, who are bound to service for a term of years, to attend these schools for a certain number of hours a day, and even pay their tuition for them to boot; because they consider the efficiency of the boys is vastly increased by it.

The results of these schools are evident, not merely in the improvement in business methods, which has gone on very rapidly in the last twenty years in these countries, but also in the work of these nations in foreign trade. Youth who have such a training are eagerly sought by English houses, either in England itself or in English trade centres. It is a well-recognized fact that German youth are, to an appreciable extent, supplanting English lads in the great commercial houses of London.

Various Parliamentary Commissions, appointed to examine into the causes of recent industrial depression in England and the reasons for the rapid growth of German commerce in places hitherto entirely subject to English influence, have emphasized this fact and have, furthermore, called attention to the circumstance that these German youth, who are employed in English houses, soon set up business for themselves and become most efficient agents of German firms in the very heart and centre of English trade. They attribute the willingness of English business men to employ German youth in preference to English youth, chiefly to

the fact that they ordinarily possess a much better general and special training. It is a significant fact, in this connection, that there is not, in all England, a single commercial high school which would bear comparison with any one of a hundred in Germany.

The most striking testimonial to the value of such schools to the trade and commerce of the locality and nation is to be found in the fact that the great majority of the most prominent continental schools are supported not by the government but by private associations of merchants and business men in general, or by boards of trade, chambers of commerce, and similar organizations.

Thus the Paris Chamber of Commerce supports three such commercial high schools at its own expense, and conducts free evening classes for adults in special subjects. The commercial high schools charge a considerable fee, and funds have been raised by private subscription, so that these items go far toward defraying the expenses of the schools—in two cases, indeed, yield a net income; but the general deficit is met by the Chamber itself.

The great school at Leipsic is supported by the Chamber of Commerce of that city; while the still greater school at Vienna is maintained by an association of business men formed for this purpose.

Closely connected with the proposition that a Commercial High School is demanded in the interests of our public educational system, is my last proposition that it is called for in the interest of the boys themselves. This is, of course, the converse almost of the first. It is proper that the community should provide facilities for the youth to get a preparation for college or the professional school; it is proper for it to provide facilities to get a preparation for the engineering school or for the life of the shops or the factories; but it is no less proper for it to provide facilities for the youth to get a training in preparation for the great field of business and commercial life. It is, indeed, unfair to look out for the interests of the youth who wishes to enter a profession or take up engineering, and yet do nothing for him who wishes to enter a business career.

Of course, in planning such a school, reference must be had to the fair claims of an educational institution. Just as the Central High School does not undertake to teach law or medicine or theology, but does aim to give that general training which is common and desirable to the members of all the professions; just as the Manual Training High School does not undertake to prepare its students to be carpenters, machinists, and engineers; but does aim to give that general training which is common

to all the various branches of skilled manual labor and which underlies the calling of engineers; so the Commercial High School would not undertake to turn out a cotton, or wool, or grain merchant, a banker, broker, or insurance agent; but it would aim to give a training and a body of knowledge which would be found equally useful in all these and similar occupations. The Commercial High School would be expected to keep in mind, as its sister institutions, that the man is after all higher than his calling, that its work is education and training, not cramming; and that its pupils should be first of all honest men, intelligent and educated gentlemen, and patriotic and public spirited citizens, and then good brokers, bankers, and merchants—or rather that they should be one and all at the same time.

Before closing, it may not be amiss to indicate briefly the contents of the curriculum of such a school. It should be, in my opinion, at least three years in length, and better four than three, admitting boys directly from the grammar schools of the city, as do our present high schools.

Accounting, of course, should occupy a prominent place. It ought to be taught more as a matter of principle than detail, *i. e.*, with an idea of enabling the pupils to understand easily any system which they may have to learn in subsequent life, rather than trying to make expert accountants of them in any one line. It should be at once more scientific and more practical than at present. It should be used, moreover, as a means of studying commercial and industrial life. If a man understands thoroughly the system of accounting which a great business house has developed as a result of its daily experience through years of work, he has gained an insight into some of the most characteristic features of that business.

The books of a great railway corporation, for example, are an epitome not only of the actual transactions of such a company, but they are a reflex of the ideas of the managers as to some of the most difficult questions of policy in regard to transportation.

This subject of accounting needs moreover, much more attention than it has received thus far. When it is impossible for the managers of a great railway system after months of effort to do more than indicate in a very general way what has been done with the funds belonging to the company, there is surely needed no argument on this question.

Side by side with accounting should be pursued, of course, the ordinary mathematical courses of a high school, except that some attention should be given to the application of arithmetic and algebra to the operations of

commercial life—including operations in commission and interest, calculation of all sorts, foreign exchange, arbitration of exchange, foreign systems of weights, measures, and money, interest on stock, bonds, annuities, premiums, etc.

The History of Commerce and commercial systems should also form a constituent of the course. The youth should study the origin and development of commerce and its methods from the earliest times down to the present—both as to the articles which have formed the staples of commerce and the methods by which business was transacted.

Commercial Geography—dealing with the origin of, and the methods of obtaining and producing, the various articles of modern commerce, should also receive much attention.

The study of commercial products and their peculiarities is also important. The youth who has completed such a course should know in a general way the various purposes, for example, for which the different kinds of wool are utilized—should understand why a manufacturer of woolen goods needs wool from a certain place in the world for his product, and why that particular kind of wool is grown successfully in that particular place. He should also be able to recognise by sight the most important grades and conditions of this product.

A consideration of the modern systems of transportation should also be included in such a course—not merely a history of its origin and development—but an examination of the different systems of railroad and steamship tariffs and the principles underlying them, together with the various methods of shipment and the laws relating to the responsibility of shipper and transporter.

It would go without the saying that opportunity should be offered to pursue modern languages so thoroughly that the pupil could speak and write them with fluency, so as to utilize them in business correspondence. In such a school Spanish should receive special attention, as the possibility of spreading our trade rapidly in the South American states depends, among other things, on our having properly educated young men who can go into those countries and transact business in their languages.

Training in penmanship and business correspondence, and the correct and fluent use of English, would be understood as fundamental elements in such a course; while general history and literature, American history and American literature, and our American political system and Political Economy should all receive that ample attention which their importance

in the liberal training of educated American citizens demands. Opportunity should also be given to those students who desire it to learn stenography and typewriting, and other subjects of instruction represented in our ordinary business college courses.

It is believed that a curriculum based on these ideas, worked out in its details by competent educators and properly taught by experienced teachers, could afford a training which every young fellow would do well to obtain, if possible, before entering upon a practical career in business.

OUTLINE OF A PROPOSED CURRICULUM FOR A COMMERCIAL HIGH SCHOOL

N. B.—The curriculum is arranged for four years: if the conditions allow only a three years' course, the fourth year may be dropped, letting the course for the first three years remain unchanged.

FIRST YEAR.		SECOND YEAR.	
Rhetoric	2	English Literature	2
Algebra	2	Algebra completed } Geometry begun }	2
Accounting	2	Accounting	2
Chemistry	2	General History	2
Physical Geography	2	Biology	2
American History	2	Commercial Geography	2
Business Correspondence and Penmanship	2	Commercial Arithmetic	2
*First Foreign Language	3	History of Industries	2
Second Foreign Language	3	*First Foreign Language	2
		Second Foreign Language	2

THIRD YEAR.		FOURTH YEAR.	
Geometry completed	2	Industrial Chemistry	2
Physics	2	Financial History of U. S.	2
Commercial Law	2	Taxation	2
Political Economy	2	Study of Transportation—Railway, Steamships, Tariffs, etc.	2
History of Commerce	2	Local Government	2
Commercial Legislation of Foreign Countries	2	International Law	2
Civil Government	2	Money and Banking	2
Study of Commercial Products	2	*First Foreign Language	3
*First Foreign Language	2	Second Foreign Language	3
Second Foreign Language	2		

* Each student is required to take two of the following languages: French, German, Italian, and Spanish.

As optional studies, if it seems desirable, may be offered: Stenography, Typewriting, etc., and advanced courses in each of the subjects indicated, so that the better students may be enabled to utilize their time fully.

FOREIGN NOTES

WHY THE SWISS ARE WELL EDUCATED.

The Schoolmaster.

The conference of the Swiss teachers is being held this year at Zürich. The choice of a conference town was very appropriate, as Zürich holds an educational position second to, perhaps, hardly any town in Europe. Through the inclusion of eleven outlaying parishes with the city, Zürich has become the largest town in Switzerland, its population being nearly 120,000. The educational interests of the town are under the oversight of a Central School Board and five District School Boards. Each of the five districts chooses a member of the Central School Board for each 6,000 of its inhabitants. The president of this body, who is a paid official, is elected by the votes of the whole town. Each member of the Central School Board is *ex officio* a member of the School Board in his district. In addition to these *ex officio* members, the District School Boards have each from eleven to nineteen additional members. The manner in which these additional members are chosen is interesting to English readers. The united body of the teachers in each district forms the Teachers' Council for that district, whilst all the teachers in the service of the town form the Teachers' Council for the town. The president of the Teachers' Council for each district is by virtue of his office a member of the School Board for the district. In addition, a number of teachers, varying from four to ten in each district, are chosen by their fellows as members of the School Board for the district. On the Central School Board besides the members chosen by popular vote, the following are empowered to take part in the debates, but have no vote: The presidents of the teachers' councils in the districts, the president of the teachers' council for the town, and a member chosen by the residents of the District School Boards. There is yet another safeguard against crude legislation by theorists in education. All regulations for the conduct of the schools passed by the Central School Board must be submitted to the teachers' council for the town, and approved by that body, before they take effect. The school buildings of Zürich are of various types, ranging from the country school house to the magnificent and palatial buildings now commonly associated with towns. A school building lately completed is estimated to have cost £60,000, whilst a new building, planned for twenty-four class rooms and two halls for physical exercise, will cost

£32,000. But it is not only on the buildings that the people of Zürich spend money. The estimated cost of school maintenance only for the present year is over £65,000, a sum greater in proportion to the population than is spent by the London School Board on school maintenance and building combined.

RELIGIOUS INSTRUCTION IN SCHOOLS.

The Schoolmaster, July 7, 1894.

In connection with the Convocation of Canterbury, held on Wednesday, the House of Laymen received from Earl Nelson an *ad interim* report of the Committee on Christian Education in Public Elementary Schools. It contained the following conclusions of the sub-committee appointed to consider the Birmingham system:

"(1) That the Birmingham system as it exists is far better than a total absence of religious instruction; and the promoters of these schemes, both the Nonconformists who initiated the system, and Churchmen who are now working on similar lines, deserve the highest credit for their efforts on behalf of the Christian training of children in Birmingham. (2) That for completeness and thoroughness the instruction thus given cannot be compared with that provided in a good National school. (3) That if a School Board would permit their teachers to take part in such religious instruction and to work in concert with the ministers of the various denominations, the Birmingham schemes might be developed into a workable system. (4) That, failing this, such a result could only be achieved in rural Board schools where the clergy might prove sufficient for the number of church children under instruction, or in urban Board Schools in districts where the mass of the elementary education is in the hands of Voluntary schools, and the Board school children requiring religious instruction are comparatively few. (5) That it is essential, both in justice to the religious convictions of the parent, and in order to secure definiteness in the character of the instruction, that such a register should be kept as will enable the parent to indicate the particular form of religious instruction which he desires for his child, so that it may be provided accordingly. (6) That, if the regular teachers cannot be so employed, ministers of religion are, generally speaking, the fittest persons to give the instruction under such a Voluntary system, both because they are the most competent for the work and because from their office they interfere less with the position of the secular teacher in the estimation of the children."

The report was adopted.

* * * * * * * * * *

"A very heavy responsibility", says Dr. Fitch in the course of a particularly weighty and able article, in the current *Nineteenth Century*, "rests upon Mr. Athelstan Riley and his friends, who in pursuit of an object which they must know to be unattainable—the acceptance of disputable theological dogmas as the basis of religious and moral instruction in the rate-aided school—have placed in serious peril the simple, reverent, and

appropriate scriptural teaching which is being given, with such great advantage and without raising any controversial difficulty, to half a million London children. If anything could add to one's sense of the mischievous character of the polemic which has been carried on in the meeting room of the Board the last few months, it would be the manner and spirit of the whole discussion. Christians and non-Christians alike have been scandalised, not only by the waste of time and the neglect of the proper business of the Board, but by the acrimony, the vulgarity, and the essentially unreligious tone in which a question of the most sacred importance has been treated by the disputants. No one who has listened in the Board room to these angry zealots, or who read in the press the report of their speeches, could find it easy to believe that the matter in hand was the spiritual side of the nature of young children, their training in reverence and in goodness, the formation of their character, the regulation of their conduct, or the development and nurture of their higher life."

Journal of Education, August 1, 1894.

Dr. Fitch has preëminently the art of summing up a controversy and pronouncing a calm, grave judgment after the heated wranglings of party advocates, which must carry conviction to all indifferent onlookers, like the Pope's in "The Ring and the Book." It is more the way the arguments are put than any novelty in the arguments themselves that impresses us in his *Nineteenth Century* article on "Religion in Primary Schools." Those who have not read it should read it, and we shall not forestall their pleasure by giving them extracts or a summary. We may note, however, for one and all, the conclusions he reaches, from a study of the recent development of national education in all civilized countries. From the analogy of France, Belgium, and the United States, it is perfectly clear what will happen if Mr. Athelstan Riley's counsels prevail. State-aided schools will be completely secularized, and religious instruction will be given only in voluntary schools supplied by religious enthusiasts. Is this a prospect that commends itself to God-fearing parents who look only to the welfare of their children?

THE GOUIN METHOD.

Journal of Education, August 1, 1894.

That the Gouin method is very much alive is proved conclusively by the numerous letters which our note of last month has provoked, and of

which we publish three. That the method, in the hands of a competent teacher, may produce excellent results we have never denied, and as a protest against mere book-learning and gerund-grinding we have heartily welcomed it. What we do deny, and shall continue to deny till we are shown our error, is that there is any originality either in the linguistic principles or in their application as set forth in M. Gouin's book. We have also strong evidence, if evidence were wanted, that, as practised by a second-rate teacher, nay, by M. Gouin himself, it is singularly liable to degenerate into a dull, mechanical routine, exercising no mental powers save the memory.

MR. ACLAND'S SIX INSPECTORS.

The Schoolmaster, July 14, 1894.

Discussing Mr. Acland's appointments to the Inspectorate last week, we inadvertantly overlooked the elevation to the Inspectorate of Mr. T. Jones, M. A. Mr. Jones, as those who recall the particulars of his career given at the time of his appointment, may remember, served a five years' pupil teachership, was trained at Bangor, worked for ten years as a head master, for thirteen years as an Inspector's assistant, and for eleven years as Sub-Inspector. Mr. Jones's record of work in connection with elementary education, therefore, is longer even than that of Mr. Northrop, totalling up as it does to over forty-one years. It is interesting to note that of the six Inspectors appointed by Mr. Acland Mr. Jones has the longest record of practical acquaintance with elementary school work—in all forty-one years. Mr. Northrop had thirty-nine years' experience; Mr. Foster, M. A., twenty-five years; Mr. Holman, M. A., fourteen years; Mr. Barnett, M. A., three years (as a School Board member); and Mr. Roberts, M. A., two years (the earlier stages of pupil teachership).

PUBLICATIONS RECEIVED

PEDAGOGICS

Regents Bulletin. No. 27. July, 1894. Extension No. 7. Extension Teaching. Size 6¼ x9¾ in. Price 10 cents. No. 28. July, 1894. 33d University Convocation of the State of New York, July 5-7, 1894. Price 25 cents. No. 29. August, 1894. Extension No. 8. Summer Schools. Price 10 cents. Albany: University of the State of New York

ENGLISH LANGUAGE AND LITERATURE

BASS: Nature Stories for Young Readers. Animal Life. By Florence Bass. Size 5¼x 7½ in. pp. xi+172. Price 35 cents. D. C. Heath & Co.

EMERSON: The History of the English Language. By Oliver Farrar Emerson, A. M., Ph. D., Assistant Professor of Rhetoric and English Philology in Cornell University. Size 5x7¼ in. pp. xii+415. Price $1.25. Macmillan & Co.

GOLLANCZ: Shakespeare's Comedy of As You Like It. With preface, glossary, etc. by Israel Gollancz. Size 4½x5⅜ in. pp. ix+142. Price 45 cents. Macmillan & Co.

GOLLANCZ: Shakespeare's Comedy of the Taming of the Shrew. With preface, glossary, etc. by Israel Gollancz. Size 4½x5⅜ in. pp. xi+133. Price 45 cents. Macmillan & Co.

GOLLANCZ: Shakespeare's Comedy of the Merchant of Venice. With preface, glossary, etc. by Israel Gollancz. Size 4¼x5½ in. pp. xi+131. Price 45 cents. Macmillan & Co.

GOLLANCZ: Shakespeare's Comedy of a Midsummer Night's Dream. With preface, glossary, etc. by Israel Gollancz. Size 4¼x5½ in. pp. xiv+112. Price 45 cents. Macmillan & Co.

PHELPS: Students' Edition. Tales of a Traveller, by Washington Irving. The Author's Revised Edition. Edited by William Lyon Phelps, A. M., Ph. D., Instructor in English Literature at Yale College. Size 5½x8 in. pp. xxii+358. Price $1. G. P. Putnam's Sons.

POLLARD: Chaucer's Canterbury Tales. Edited with Notes and Introduction by Alfred W. Pollard. Vols. I and II. Size of each 5x7¼ in. pp. in Vol. I xxix+465. pp. in Vol. II 474. Price $3. Macmillan & Co.

SKEAT: The Complete Works of Geoffrey Chaucer. Edited, from Numerous Manuscripts by the Rev. Walter W. Skeat, Litt. D., LL. D., M. A., Erlington and Bosworth Professor of Anglo-Saxon, and Fellow of Christ's College, Cambridge. The Canterbury Tales: Text Size 6x9 in. pp. xxiii+667. Price $4. Macmillan & Co.

WHITCOMB: Chronological Outlines of American Literature. By Selden L. Whitcomb, A. M. With An Introduction by Brander Matthews, Professor of Literature in Columbia College. Size 5x7⅜ in. pp. 286. Price $1.25. Macmillan & Co.

ANCIENT LANGUAGES AND LITERATURES

EARLE: Euripides' Alcestis. Edited by Mortimer Lamson Earle, Doctor in Philosophy of Columbia College, Instructor in Greek at Barnard College, New York. Size 4⅛x6½ in. pp. xlvi+202. Price 90 cents. Macmillan & Co.

GILDERSLEEVE: Gildersleeve's Latin Grammar. Third Edition, Revised and Enlarged. By B. L. Gildersleeve, Professor of Greek in Johns Hopkins University, and Gonzalez Lodge, Associate Professor of Latin in Bryn Mawr College. Size 5½x 7¼ in. pp. vi+550. University Publishing Co.

LODGE: See Gildersleeve.

SMYTH: The Sounds and Inflections of the Greek Dialects. Ionic. By Herbert Weir Smyth, Ph. D., Professor of Greek in Bryn Mawr College, Pennsylvania. Size 6x8¾ in. pp. xxvii+668. Price $6. Macmillan & Co.

MODERN LANGUAGES AND LITERATURES

BUCHHEIM: Clarendon Press Series. German Classics. Edited with English Notes, etc. By C. A. Buchheim, Phil. Doc., F. C. P., Professor of the German Language and Literature in King's College, London. Volume XI. Halm's Griseldis. Size 4¼x6¾ in. pp. lv+154. Price 90 cents. Macmillan & Co.

DRIEU: Maynard's French Texts. No. IV Historiettes. Adapted from the English. Edited by P. Drieu, ès L., Assistant Master at St. Paul's Preparatory School, London. Beginners' Text with Vocabulary. Size 4½x6¾ in. pp. 59 Price 20 cents. Maynard, Merrill & Co.

GOODRICH: Doktor Luther. Eine Schilderung von Gustav Freytag. Edited, with Introduction and Notes, by Frank P. Goodrich, Ph. D., Professor of the German Language and History in Williams College. Size 5x7¼ in. pp. xi+177. Price 70 cents. Ginn & Co.

LOGIE: Heath's Modern Language Series. L'Abbé Constatin. Par Ludovic Halévy. Edited by Thomas Logie, Ph. D., Assistant Professor in Romance Languages, Rutgers College. Size 5x7⅛ in. pp. 156. Price 30 cents. D. C. Heath & Co.

LYON: Maynard's German Texts. No. 3 Bilder aus der Türkei from Grube, Geographische Charakterbilder. Edited by W. S. Lyon, M. A., Modern Language Master in the Grammar School, Manchester, England. Elementary Text with Notes and Vocabulary. Size 4⅜x6⅛ in. pp. 92. Maynard, Merrill & Co.

LYON: Maynard's French Texts. No 3 Huit Contes par Mlle. Marie Minssén. Edited by W. S. Lyon, M. A., Modern Language Master in the Grammar School, Manchester, England. Beginners' Texts with Vocabulary. Size 4½x6⅛ in. pp. 60. Maynard, Merrill & Co.

MORICH: Maynard's German Texts. No. 4 Weihnacten bei Leberecht Hühnchen. Von Heinrich Seidel. Edited by R. J. Morich, Chief Modern Language Master in the Grammar School, Manchester, England. Elementary Text with Notes and Vocabulary. Size 4⅜x6¼ in. pp. 96. Price 25 cents. Maynard, Merrill & Co.

POLITICAL AND SOCIAL SCIENCE

BRADFORD: See Godkin.

GODKIN: Publications of the American Academy of Political and Social Science. Nos. 118, 119, and 120. The Problems of Municipal Government. By Edwin L. Godkin. The Reform of Our State Governments. By Gamaliel Bradford. A Decade of Mortgages. By George K. Holmes, Census Bureau. Size of each 6x9 in. pp. 62. Philadelphia: American Academy of Political and Social Science.

HOLMES: See Godkin.

JAMES: Johns Hopkins University Studies in Historical and Political Science. Herbert B. Adams, Editor. Twelfth Series. X. English Institutions and the American Indian. By James Alton James, Ph. D. (J. H. U.), Professor of History, Cornell College, Iowa. Size 6¼x7½ in. pp. 59. Price 25 cents. The Johns Hopkins Press.

PATTEN: Publications of The American Academy of Political and Social Science. No. 121. The Failure of Biological Sociology, by Simon N. Patten, University of Pennsylvania. Size 5½x9 in. pp. 29. Price 25 cents. No. 123. Peaceable Boycotting, by Chester A. Reed, Boston. Size 5½x9 in. pp. 30. Price 25 cents. Philadelphia: American Academy of Political and Social Science.

REED: See Patten.

SCIENCE

BOYER: A Laboratory Manual in Elementary Biology. An Inductive Study in Animal and Plant Morphology. Designed for Preparatory and High Schools. By Emanuel R. Boyer, A. B., Instructor in Biology, Englewood High School, Lecturer in Biology, Extension Department, University of Chicago. Size 5x7¼ in. pp. xxii+213. Price 80 cents. D. C. Heath & Co.

CHUTE: Physical Laboratory Manual for use in Schools and Colleges. By H. N. Chute, M. S., Teacher of Physics in the Ann Arbor High School. Size 5x7⅛ in. pp. xvii+213. Price 80 cents. D. C. Heath & Co.

HOPKINS: Preparatory Physics. A Short Course in the Laboratory. By William J. Hopkins, Professor of Physics in the Drexel Institute of Art, Science, and Industry, Philadelphia. Size 5¼x8¼ in. pp. vii+147. Longmans, Green & Co.

PHYSIOLOGY AND HYGIENE

KELLOGG: Second Book in Physiology and Hygiene. By J. H. Kellogg, M. D. Illustrated. Size 5x7⅛ in. pp. vi+291. Price 80 cents. American Book Co.

REYNOLDS: Primer of Hygiene. By Ernest S. Reynolds, M. D. (Lond.) Member of the Royal College of Physicians of London, Senior Physician to the Ancoats Hospital, Manchester; Victoria University Extension Lecturer on Hygiene; Examiner on Hygiene to the Union of Lancashire and Cheshire Institutes. With Fifty Illustrations. Size 4x6 in. pp. xii+164. Price 35 cents. Macmillan & Co.

HISTORY

STRACHAN-DAVIDSON: Cicero and the Fall of the Roman Republic. By J. L. Strachan-Davidson, M. A., Fellow of Balliol College, Oxford. Size 5⅛x7¾ in. pp. 446. Price $1.50. G. P. Putnam's Sons.

MISCELLANEOUS

CLARK: The Church in Thy House. Daily Family Prayers for Morning and Evening. By Rev. Rufus W. Clark, D. D., Rector of St. Paul's Church, Detroit. Third Edition. Size 5x7¼ in. pp. 125. Thomas Whittaker.

State Library Bulletin. Public Libraries No. 2 June, 1894. Statistics of New York Libraries for 1894. Size 7x9⅜ in. pp. 77. Price 10 cents. University of the State of New York.